APRIL 1982 NUMBER 452 -- Part I

Solar-Geophysical Data prompt reports

Data for March 1982, February 1982 & Late Data
Explanation of Data Reports Issued as Number 450 (Supplement) February 1982

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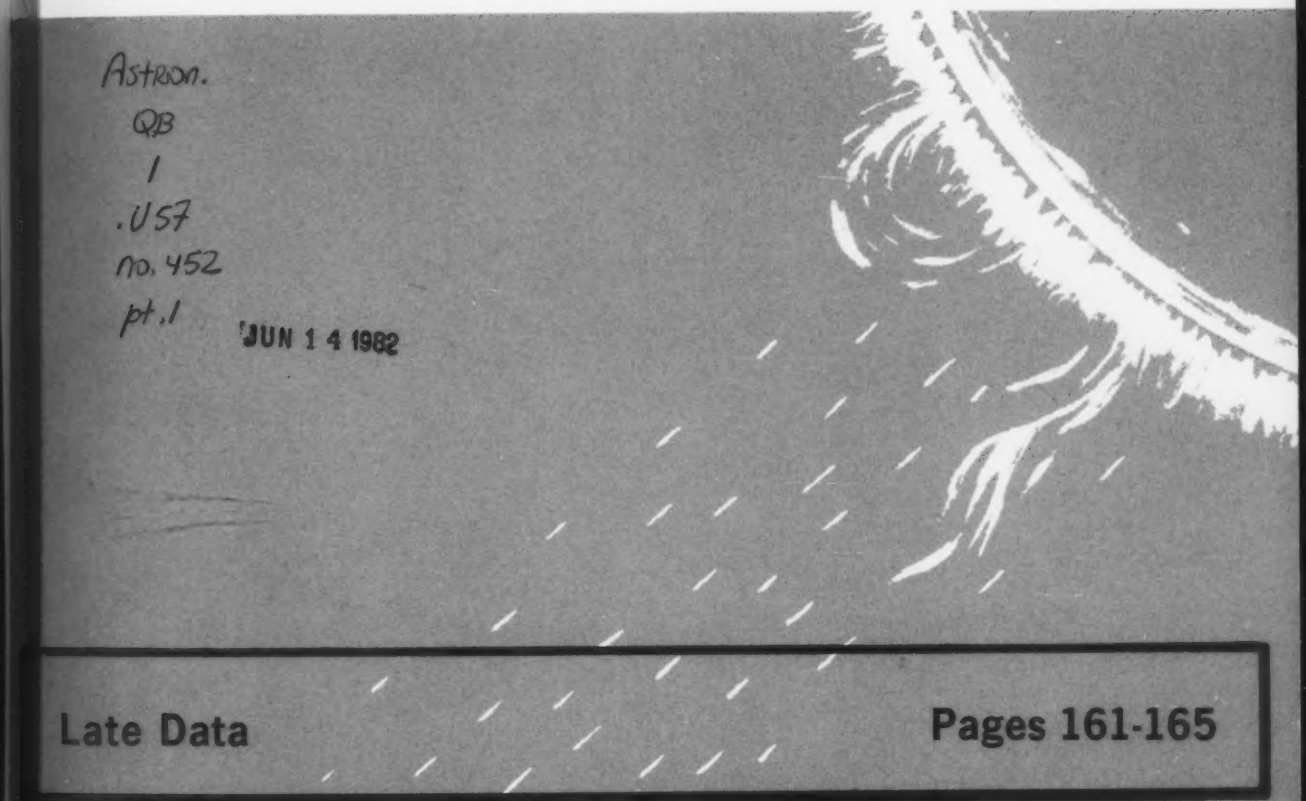

Late Data **Pages 161-165**

noaa NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION / ENVIRONMENTAL DATA AND INFORMATION SERVICE / BOULDER, COLORADO

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Solar - Geophysical Data

NO. 452 APRIL 1982

Part I (Prompt Reports)

DATA FOR
MARCH 1982
FEBRUARY 1982

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BOULDER, COLORADO

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Solar-Geophysical Data, 450 Part I (or Part II), pages, February 1982, U.S. Department of Commerce (Boulder, Colorado, U.S.A. 80303).

SOLAR-GEOPHYSICAL DATA

No. 452

Issued in two parts

Helen E. Coffey, Editor

Joe H. Allen, Chief
Solar-Terrestrial Physics Division

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A.10a	169 MHz - Interferometric Observations (Nancay)	440A 29	442A160	442A 27	443A 23	444A 27	445A 27	446A 20	447A 28	448A 25	449A 25	450A 23	452A162	452A 28
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A.10e	10.7 cm East-West Solar Scans (Ottawa-ARO)	440A 31	441A 32	442A 29	443A 25	444A 29	445A 29	446A 22	447A 31	448A 27	449A 27	450A 25	451A 32	452A 30
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A.17c	Inferred IP Magnetic Field	440A 44	441A 48	442A 42	443A 36	444A 44	445A 46	446A 32	447A 44	448A 42	449A 36	450A 32	451A 48	452A 40
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C.1a	Optical Observations Flares	440A 18	441A 18	442A 16	443A 15	444A 16	445A 16	446A 16	447A 16	448A 16	449A 16	450A 16	451A 16	452A 16
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C.1d	Flare Patrol Observations 1979-80	449B 95	451B 92											
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	Solar Radio Waves - Fixed Frequencies - Selected	440A 34	441A 35	442A 32	443A 28	444A 32	445A 32	446A 25	447A 34	448A 30	449A 30	450A 28	451A 35	452A 33
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C.4d	Solar Radio Spectral Obs. (Culgoora)	441A136	443A154	443A123	444A127	445A136	446A108	447A130	448A173	449A132	450A122	451A140	452A124	
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C.4f	Solar Radio Spectral Obs. (Sagamore Hill)	441A136	442A134	443A123	444A127	445A136	446A108	447A130	448A134	449A132	450A122	451A140	452A124	
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C.4i	Solar Radio Spectral Obs. (Bleien)	441A136	442A134	443A123	444A127	445A136	---	---	---	---	---	451A140	452A124	
C.4j	Solar Radio Spectral Obs. (Manila)													
C.4k	Solar Radio Spectral Obs. (Learmonth)	441A136	442A134	443A123	444A127	445A136	446A108	447A130	448A134	449A132	450A122	451A140	452A124	
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D.1ca	aa graph 1868 - present													
D.1d	Principal Magnetic Storms	441A166	442A155	443A147	444A147	445A163	447A180	448A164	449A186	449A162	450A141	451A159	452A155	
D.1e	Reduced Magnetograms													
D.1f	Sudden Commencement and Solar Flare Effects	442A180	443A165	443A148	445A180	445A164	446A138	447A155	448A153	449A163	450A142	451A160	452A157	
D.1g	Equatorial Indices Dst	442A182	444A155	445A182	445A183	446A144	447A179	448A163	449A185	450A153	451A175	452A165		
D.1h	Geomagnetic Substorm Log (Boulder)	440A 43	441A 51	442A 46	443A 40	444A 48	445A 4	446A 35	447A 47	448A 45	449A 39	450A 35	451A 52	452A 44
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F.1b	Cosmic Ray Neutron Counts (Climax)	442A177	442A151	443A141	445A178	447A176	447A177	447A151	449A180	450A149	451A172			
F.1e	Cosmic Ray Neutron Counts (Alert)	442A177	442A151	444A152	447A176	447A176	447A177	447A151	449A180	450A149	450A134	451A151	452A151	
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Notes:

"441A 58" listed under 1981 Mar means that the sunspot drawings for Mar 1981 were contained in Solar-Geophysical Data Number 441 - Part I, beginning on page 58.

A = Part I, B = Part II.

----- = no data available.
blank = data not yet received.

SGD 452 Part I (Prompt)

MARCH 1982 DATA

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ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

SUMMARY OF THE GEOALERT WWA MESSAGES

MARCH 1982

Message serial number	Date of issue	Date of observation	Wolf number	10 cm solar flux	A index	Active Regions Location Lat-Long	No. of Flares Total	M	X	Outstanding events	Forecasts Date	Location Lat-Long	Desc*	Alert Situations
060	01	28	237	228	007	S11W45	0	0	0	Presto Toyokawa	01	S11W45	Q	SOLQUIET
						S06W28	0	0	0	Tenflare 140 Flux		S06W28	Q	MAGQUIET
						S12W15	0	0	0	Units 0450Z		S12W15	Q	
						S13W05	0	0	0	Duration 5 Minutes.		S13W05	Q	
						N05E02	0	0	0			N05E02	Q	
						S16E12	3	0	0			S16E12	E	
						N15E13	7	1	0			N15E13	E	
						S05E18	1	0	0			S05E18	Q	
						N08E19	0	0	0			N08E19	Q	
						N17E30	7	0	0			N17E30	E	
						S21E53	4	0	0			S21E53	E	
						S14E57	0	0	0			S14E57	Q	
061	02	01	273	236	045	S12W59	0	0	0		02	S12W59	Q	SOLQUIET
						S07W43	0	0	0			S07W43	Q	MAGALERT MINOR 02
						S14W28	0	0	0			S14W28	Q	
						S12W18	1	0	0			S12W18	E	
						N14W01	5	0	0			N14W01	E	
						S14W01	0	0	0			S14W01	E	
						N08E05	0	0	0			N08E05	Q	
						S05E05	0	0	0			S05E05	E	
						N17E15	0	0	0			N17E15	E	
						S21E39	2	0	0			S21E39	E	
						S14E41	0	0	0			S14E41	E	
062	03	02	266	238	070	S12W72	0	0	0	Presto Magstorm In	03	S12W72	Q	SOLQUIET
						S06W56	0	0	0	Progress 02/1500Z		S06W56	Q	MAGALERT 03/06
						S13W41	0	0	0	A Greater Than 50.		S13W41	Q	
						S11W33	0	0	0			S11W33	Q	
						N14W15	3	0	0			N14W15	E	
						S15W15	0	0	0			S15W15	Q	
						S05W09	0	0	0			S05W09	Q	
						N08W08	0	0	0			N08W08	Q	
						N17E02	2	0	0			N17E02	E	
						S13E27	5	0	0			S13E27	E	
						S20E27	1	0	0			S20E27	E	
063	04	03	258	234	015	S12W87	0	0	0		04	S12W87	Q	SOLQUIET
						S07W70	0	0	0			S07W70	Q	MAGALERT MINOR 04
						S13W55	1	0	0			S13W55	Q	
						S13W46	0	0	0			S13W46	Q	
						S16W29	0	0	0			S16W29	Q	
						N14W27	2	0	0			N14W27	E	
						S06W22	0	0	0			S06W22	Q	
						N08W21	0	0	0			N08W21	Q	
						N16W12	4	0	0			N16W12	E	
						S13E14	3	0	0			S13E14	E	
						S21E14	4	1	0			S21E14	E	
						S08E74	0	0	0			S08E74	Q	
064	05	04	242	249	013	S06W84	0	0	0		05	S06W84	Q	SOLQUIET
						S13W69	0	0	0			S13W69	Q	SOLNIL
						S14W42	0	0	0			S14W42	Q	
						N14W41	0	0	0			N14W41	E	
						S04W34	3	0	0			S04W34	Q	
						S08W34	0	0	0			S08W34	Q	
						N17W24	1	0	0			N17W24	E	
						S13W00	0	0	0			S13W00	E	
						S20W00	6	0	0			S20W00	E	
						S07E59	0	0	0			S07E59	Q	
						S12E74	0	0	0			S12E74	Q	
065	06	05	233	252	015	S13W82	0	0	0	Presto Soflare	06	S13W82	Q	SOLQUIET
						S16W59	0	0	0	M4/2B S14E01		S16W59	Q	MAGQUIET
						N14W54	0	0	0	04/0244Z Duration		N14W54	Q	
						S04W46	1	0	0	15 Minutes.		S04W46	E	
						N11W44	0	0	0	Tenflare 140 Flux		N11W44	Q	
						N17W38	2	0	0	Units 05/0237Z		N17W38	E	
						S13W13	9	0	0	Duration 40 Minutes		S13W13	E	
						S21W12	6	1	0			S21W12	E	
						S08E47	0	0	0			S08E47	Q	
						S12E62	0	0	0			S12E62	Q	
						N06E73	0	0	0			N06E73	Q	
066	07	06	202	241	002	S16W73	0	0	0		07	S16W73	Q	SOLALERT 07/09
						N14W68	0	0	0			N14W68	Q	MAGQUIET
						S05W60	0	0	0			S05W60	Q	
						N16W50	0	0	0			N16W50	E	
						S13W26	3	0	0			S13W26	E	
						S21W25	3	0	0			S21W25	E	
						S05E17	0	0	0			S05E17	Q	
						S07E33	0	0	0			S07E33	Q	
						S11E47	0	0	0			S11E47	Q	
						N05E57	0	0	0			N05E57	E	
						S14E78	0	0	0			S14E78	Q	
067	08	07	183	232	003	N14W82	0	0	0	Presto Soflare	08	N14W82	Q	SOLALERT 08/08
						S05W75	0	0	0	X2/2B N17W53		S05W75	Q	MAGALERT FLARE 09/10
						N17W62	2	0	1	07/0308Z Duration		N17W62	A	
						S13W39	0	0	0	42 Minutes		S13W39	E	
						S19W37	0	0	0	Tenflare 3500 Flux		S19W37	E	

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SUMMARY OF THE GEOALERT WWA MESSAGES

Message serial number	Date of issue	Date of observation	Wolf number	10 cm solar flux	A index	Active Regions: Location Lat-Long	No. of Flares: Total	M	X	Outstanding events	Forecasts: Date	Location Lat-Long	Desc*	Alert Situations
						S06E03	1	0	0	Units 07/0246Z		S06E03	Q	
						S08E21	0	0	0	Duration 40 Minutes		S08E21	Q	
						S12E35	0	0	0	Tenflare 1280 Flux		S12E35	Q	
						N05E45	1	0	0	Units 07/0403Z		N05E45	E	
						S13E66	0	0	0	Duration 100 Minutes		S13E66	Q	
068	09	08	169	216	007	S05W88	0	0	0		09	S05W88	Q	SOLNIL
						N18W76	2	0	0			N18W76	E	MAGALERT 09/10
						S19W55	1	0	0			S19W55	E	
						S12W53	1	0	0			S12W53	E	
						S06W10	1	0	0			S06W10	E	
						S08E08	0	0	0			S08E08	Q	
						S12E21	0	0	0			S12E21	Q	
						N06E33	1	0	0			N06E33	E	
						S13E52	0	0	0			S13E52	Q	
069	10	09	163	195	018	S20W72	0	0	0		10	S20W72	E	SOLQUIET
						S14W67	2	0	0			S14W67	E	MAGNIL
						S06W26	2	0	0			S06W26	E	
						S15W09	0	0	0			S15W09	Q	
						S08W06	0	0	0			S08W06	Q	
						N30E04	0	0	0			N30E04	Q	
						S12E08	0	0	0			S12E08	Q	
						N06E21	1	0	0			N06E21	E	
						S14E39	0	0	0			S14E39	Q	
						N04E80	0	0	0			N04E80	Q	
						N14E85	0	0	0			N14E85	Q	
070	11	10	195	184	012	S20W85	1	0	0		11	S20W85	Q	SOLQUIET
						S13W81	0	0	0			S13W81	Q	MAGQUIET
						N14W67	0	0	0			N14W67	Q	
						S10W30	3	0	0			S10W30	Q	
						S08W18	0	0	0			S08W18	Q	
						S18W18	0	0	0			S18W18	Q	
						N27W11	0	0	0			N27W11	Q	
						S12W04	0	0	0			S12W04	Q	
						N05E06	0	0	0			N05E06	E	
						S24E28	0	0	0			S24E28	Q	
						N14E65	1	0	0			N14E65	E	
						S11E67	0	0	0			S11E67	Q	
						N03E68	2	1	0			N03E68	E	
071	12	11	181	181	011	S13W91	0	0	0		12	S13W91	E	SOLQUIET
						N13W82	0	0	0			N13W82	Q	SOLALERT MINOR 12
						S10W45	1	0	0			S10W45	Q	
						S08W31	0	0	0			S08W31	Q	
						S15W29	0	0	0			S15W29	Q	
						S12W18	0	0	0			S12W18	Q	
						N06W08	0	0	0			N06W08	E	
						S15E15	1	0	0			S15E15	Q	
						N13E53	1	0	0			N13E53	Q	
						N01E55	2	0	0			N01E55	Q	
						S03E70	0	0	0			S03E70	Q	
						S06E73	2	0	0			S06E73	Q	
072	13	12	202	183	010	S08W55	1	0	0		13	S08W55	Q	SOLQUIET
						S08W45	0	0	0			S08W45	Q	MAGNIL
						S12W32	0	0	0			S12W32	Q	
						N11W27	0	0	0			N11W27	Q	
						N06W21	3	0	0			N06W21	E	
						N24W08	0	0	0			N24W08	Q	
						S15W00	1	0	0			S15W00	Q	
						N14E41	0	0	0			N14E41	Q	
						N03E42	0	0	0			N03E42	Q	
						N15E53	0	0	0			N15E53	Q	
						S04E60	0	0	0			S04E60	Q	
						N06E61	0	0	0			N06E61	Q	
						S12E85	0	0	0			S12E85	Q	
073	14	13	193	188	013	S08W57	0	0	0			S08W57	Q	SOLQUIET
						S11W45	0	0	0			S11W45	Q	MAGQUIET
						N10W36	0	0	0			N10W36	Q	
						N05W34	2	0	0			N05W34	Q	
						N24W20	1	0	0			N24W20	Q	
						S15W12	0	0	0			S15W12	Q	
						N02E30	0	0	0			N02E30	Q	
						N12E32	0	0	0			N12E32	Q	
						S06E46	0	0	0			S06E46	Q	
						N06E50	0	0	0			N06E50	Q	
						S12E70	0	0	0			S12E70	Q	
074	15	14	198	204	008	S08W71	0	0	0			S08W71	Q	SOLQUIET
						N05W47	5	0	0			N05W47	Q	MAGQUIET
						N24W35	0	0	0			N24W35	Q	
						S14W24	0	0	0			S14W24	Q	
						N13E14	0	0	0			N13E14	Q	
						N03E15	0	0	0			N03E15	Q	
						S06E32	4	0	0			S06E32	Q	
						N07E36	8	0	0			N07E36	Q	
						S11E58	0	0	0			S11E58	Q	

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SUMMARY OF THE GEOALERT WWA MESSAGES

Message serial number	Date of issue	Date of observation	Wolf number	10 cm solar flux	A index	Active Regions				Outstanding events	Forecasts			Alert Situations
						Location	No of Flares				Date	Location	Desc*	
						Lat-Long	Total	M	X			Lat-Long		
075	16	15	226	211	006	S07W84	0	0	0		16	S07W84	Q	SOLQUIET
						N05W60	7	0	0			N05W60	Q	MAGQUIET
						N24W49	0	0	0			N24W49	Q	
						S15W38	0	0	0			S15W38	Q	
						N13E00	0	0	0			N13E00	Q	
						N03E01	0	0	0			N03E01	Q	
						S06E20	1	0	0			S06E20	Q	
						N08E24	3	1	0			N08E24	E	
						N14E38	1	0	0			N14E38	Q	
						S11E44	0	0	0			S11E44	Q	
076	17	16	246	230	004	N05W73	2	0	0		17	N05W73	Q	SOLQUIET
						S16W50	0	0	0			S16W50	Q	MAGALERT RECURRENT 17/18
						N04W11	4	0	0			N04W11	Q	
						N13W10	0	0	0			N13W10	Q	
						S06E06	5	0	0			S06E06	E	
						N08E10	2	0	0			N08E10	E	
						N14E24	5	0	0			N14E24	Q	
						S10E32	0	0	0			S10E32	Q	
						N18E72	0	0	0			N18E72	Q	
077	18	17	269	233	012	N04W85	0	0	0		18	N04W85	Q	SOLALERT 18/XX
						N24W70	0	0	0			N24W70	Q	MAGALERT 18/19
						S16W64	0	0	0			S16W64	Q	
						N04W25	5	0	0			N04W25	Q	
						N13W25	0	0	0			N13W25	Q	
						N03W09	0	0	0			N03W09	Q	
						S05W08	8	0	0			S05W08	E	
						N08W03	1	0	0			N08W03	Q	
						N14E12	5	0	0			N14E12	Q	
						S10E18	1	0	0			S10E18	Q	
						N18E58	1	0	0			N18E58	Q	
						N04E73	0	0	0			N04E73	Q	
078	19	18	260	229	018	N04W94	0	0	0		19	N04W94	Q	SOLALERT 19/20
						N04W38	4	0	0			N04W38	Q	MAGALERT MINOR 19
						N14W38	0	0	0			N14W38	Q	
						N02W21	1	0	0			N02W21	Q	
						S06W21	11	1	0			S06W21	E	
						N08W17	2	0	0			N08W17	Q	
						N15W02	6	0	0			N15W02	E	
						S11E05	0	0	0			S11E05	Q	
						N18E45	1	0	0			N18E45	Q	
						N04E64	3	0	0			N04E64	Q	
079	20	19	253	224	012	N13W52	0	0	0	Presto Tenflare	20	N13W52	Q	SOLALERT 20/XX
						N04W51	1	0	0	150 Flux Units		N04W51	Q	MAGNIL
						N03W36	0	0	0	18/2136Z Duration		N03W36	Q	
						S07W35	10	2	0	8 Minutes. Soflare		S07W35	A	
						N08W31	1	0	0	M2/2B 19/0405Z		N08W31	Q	
						N15W15	4	0	0	S06W26 Duration		N15W15	Q	
						S10W08	0	0	0	148 Minutes.		S10W08	Q	
						N07E27	0	0	0			N07E27	Q	
						N18E32	1	0	0			N18E32	Q	
						N04E48	7	0	0			N04E48	Q	
						S13E69	1	0	0			S13E69	Q	
080	21	20	222	219	012	N05W68	0	0	0		21	N05W68	Q	SOLALERT 21/22
						N15W65	0	0	0			N15W65	Q	MAGQUIET
						N04W52	0	0	0			N04W52	Q	
						S07W49	7	0	0			S07W49	A	
						N08W45	0	0	0			N08W45	Q	
						N16W28	7	0	0			N16W28	E	
						S10W21	4	0	0			S10W21	Q	
						N18E18	0	0	0			N18E18	Q	
						N03E34	4	0	0			N03E34	Q	
						S13E53	0	0	0			S13E53	Q	
						N14E57	1	0	0			N14E57	Q	
081	22	21	210	214	018	N03W81	2	0	0		22	N03W81	Q	SOLALERT 22/24
						N14W79	0	0	0			N14W79	Q	MAGQUIET
						N03W65	0	0	0			N03W65	Q	
						S06W64	15	0	0			S06W64	E	
						N07W61	2	0	0			N07W61	Q	
						N16W42	2	0	0			N16W42	Q	
						S10W35	2	0	0			S10W35	Q	
						N19E05	1	0	0			N19E05	Q	
						N04E21	3	0	0			N04E21	Q	
						S13E40	0	0	0			S13E40	Q	
						N14E42	1	0	0			N14E42	Q	
						S13E69	0	0	0			S13E69	Q	
082	23	22	245	215	032	N03W95	0	0	0		23	N03W95	Q	SOLALERT 23
						N14W94	0	0	0			N14W94	Q	MAGQUIET
						N07W76	0	0	0			N07W76	Q	
						S06W76	2	0	0			S06W76	E	
						N17W55	6	0	0			N17W55	Q	
						S10W48	4	0	0			S10W48	Q	
						N19W08	6	0	0			N19W08	E	
						N04E08	0	0	0			N04E08	E	

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						S12E27	0	0	0			S12E27	Q	
						N15E28	0	0	0			N15E28	Q	
						S09E44	0	0	0			S09E44	Q	
						S13E55	0	0	0			S13E55	Q	
						S12E73	0	0	0			S12E73	Q	
						N11E76	3	0	0			N11E76	Q	
						S17E83	0	0	0			S17E83	Q	
083	24	23	223	204	011	N07W90	1	0	0		24	N07W90	Q	SOLNIL
						S06W90	0	0	0			S06W90	E	MAGQUIET
						N16W69	2	0	0			N16W69	E	
						S10W61	2	0	0			S10W61	E	
						N20W22	1	0	0			N20W22	E	
						N04W08	0	0	0			N04W08	E	
						S12E14	0	0	0			S12E14	Q	
						N15E15	0	0	0			N15E15	Q	
						S09E30	0	0	0			S09E30	Q	
						S13E43	0	0	0			S13E43	Q	
						N21E52	0	0	0			N21E52	Q	
						S12E59	0	0	0			S12E59	E	
						N11E64	5	1	0			N11E64	A	
						S17E70	0	0	0			S17E70	Q	
084	25	24	182	190	010	N16W83	0	0	0		25	N16W83	Q	SOLALERT
						S10W74	1	0	0			S10W74	E	MAGQUIET
						N19W35	0	0	0			N19W35	Q	
						N03W22	0	0	0			N03W22	Q	
						S12E01	0	0	0			S12E01	Q	
						N14E02	0	0	0			N14E02	Q	
						S07E13	0	0	0			S07E13	Q	
						S16E27	0	0	0			S16E27	Q	
						N19E42	0	0	0			N19E42	Q	
						S12E45	0	0	0			S12E45	Q	
						N12E53	8	1	0			N12E53	E	
						S17E57	0	0	0			S17E57	Q	
						S24E85	2	0	0			S24E85	E	
085	26	25	238	191	014	N16W96	0	0	0		26	N16W96	Q	SOLALERT 26
						S10W89	1	0	0			S10W89	E	MAGQUIET
						N18W49	0	0	0			N18W49	Q	
						N04W35	0	0	0			N04W35	Q	
						S13W12	0	0	0			S13W12	Q	
						N14W11	1	0	0			N14W11	Q	
						S07W00	0	0	0			S07W00	Q	
						S15E13	0	0	0			S15E13	Q	
						N19E28	0	0	0			N19E28	Q	
						S12E34	2	0	0			S12E34	E	
						N12E40	11	2	0			N12E40	A	
						S06E43	0	0	0			S06E43	Q	
						S17E47	0	0	0			S17E47	Q	
						S19E73	1	0	0			S19E73	E	
						S12E79	0	0	0			S12E79	Q	
086	27	26	217	195	009	N19W62	0	0	0		27	N19W62	Q	SOLALERT 27/29
						N03W49	0	0	0			N03W49	Q	MAGQUIET
						N14W25	0	0	0			N14W25	Q	
						S13W25	0	0	0			S13W25	Q	
						S04W15	0	0	0			S04W15	Q	
						S15W01	0	0	0			S15W01	Q	
						S12E20	2	0	0			S12E20	Q	
						N12E26	7	0	0			N12E26	A	
						S16E35	1	0	0			S16E35	Q	
						S21E59	3	1	0			S21E59	E	
						S15E63	0	0	0			S15E63	Q	
						N19E15	0	0	0			N19E15	Q	
087	28	27	273	198	014	N18W76	0	0	0	Presto Soflare	28	N18W76	Q	SOLALERT 28/30
						N03W63	0	0	0	M4/2B N11E18		N03W63	Q	MAGQUIET
						N13W40	0	0	0	27/1408Z Duration		N13W40	Q	
						S13W39	1	0	0	23 Minutes.		S13W39	Q	
						N09W34	0	0	0	Tenflare 200 Flux		N09W34	Q	
						S14W15	0	0	0	Units 27/1409Z		S14W15	Q	
						N19W14	0	0	0			N19W14	Q	
						N19E02	0	0	0			N19E02	Q	
						S12E06	7	0	0			S12E06	E	
						N12E13	9	1	0			N12E13	A	
						S16E23	2	0	0			S16E23	Q	
						S21E46	4	0	0			S21E46	E	
						S15E50	0	0	0			S15E50	Q	
						N19E63	0	0	0			N19E63	Q	
088	29	28	315	201	007	N18W90	0	0	0		29	N18W90	Q	SOLALERT 29/30
						N03W76	0	0	0			N03W76	Q	MAGQUIET
						N14W54	1	0	0			N14W54	Q	
						S13W52	0	0	0			S13W52	Q	
						N08W46	0	0	0			N08W46	Q	
						N18W28	0	0	0			N18W28	Q	
						S15W27	1	0	0			S15W27	Q	
						N19W09	0	0	0			N19W09	Q	
						S12W07	5	0	0			S12W07	Q	
						N12E01	14	0	0			N12E01	E	

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Message serial number	Date of issue	Date of observation	Wolf number	10 cm solar flux	A index	Active Regions: Location Lat-Long	No of Flares: Total	M	X	Outstanding events	Forecasts: Date	Location Lat-Long	Desc*	Alert Situations
						S04E03	0	0	0			S04E03	Q	
						S05E10	0	0	0			S05E10	Q	
						S16W11	0	0	0			S16W11	Q	
						N06E13	0	0	0			N06E13	Q	
						S21E33	4	1	0			S21E33	E	
						S15E37	2	0	0			S15E37	Q	
						N18E50	0	0	0			N18E50	Q	
089	30	29	259	199	013	N03W91	0	0	0		30	N03W91	Q	SOLALERT 30
						N13W68	0	0	0			N13W68	Q	MAGQUIET
						S12W66	1	0	0			S12W66	Q	
						N08W60	1	0	0			N08W60	Q	
						S15W39	11	0	0			S15W39	Q	
						S12W21	5	0	0			S12W21	Q	
						N12W14	11	1	0			N12W14	E	
						S16W02	2	0	0			S16W02	E	
						S05W00	0	0	0			S05W00	Q	
						N07E03	0	0	0			N07E03	Q	
						S21E17	4	0	0			S21E17	Q	
						S15E24	1	0	0			S15E24	Q	
						N18E35	1	0	0			N18E35	Q	
090	31	30	202	198	014	N13W82	0	0	0	Presto Soflare	31	N13W82	Q	SOLALERT 31/01
						S11W79	0	0	0	X2/2B N12W10		S11W79	Q	MAGALERT 01
						N08W74	0	0	0	30/0543Z Duration		N08W74	Q	
						S14W53	2	0	0	30 Minutes.		S14W53	Q	
						S12W34	1	0	0	Tenflare 860 Flux		S12W34	Q	
						N12W27	6	2	1	Units 30/0538Z		N12W27	A	
						S16W15	0	0	0	In Progress.		S16W15	E	
						S21E04	0	0	0			S21E04	E	
						S15E11	0	0	0			S15E11	Q	
						N18E19	4	0	0			N18E19	Q	
091	01	31	170	185	017	S12W90	0	0	0	Presto Tenflare	01	S12W90	Q	SOLALERT 01/03
						N08W86	0	0	0	1300 Flux Units		N08W86	Q	MAGALERT 01/02
						S15W67	1	0	0	30/0522Z Duration		S15W67	Q	
						S12W49	2	0	0	68 Minutes.		S12W49	Q	
						N19W43	1	0	0	Tenflare 120 Flux		N19W43	Q	
						N11W41	17	5	0	Units 31/2213Z		N11W41	A	
						S16W27	1	0	0	Duration 7 Minutes.		S16W27	Q	
						S21W08	6	0	0			S21W08	E	
						S15W02	0	0	0			S15W02	Q	
						N18E04	4	0	0			N18E04	E	
						S18E57	0	0	0			S18E57	Q	

PRESTO MESSAGES (THE RAPID REPORT OF MAJOR EVENTS)

02 MARCH 1982 BOULDER 02/1654Z STRONG MAGSTORM IN PROGRESS 02/1500Z A GREATER THAN 50
05 MARCH 1982 BOULDER 05/0256Z SOFLARE M4/2B S24E01 04/0244Z DURATION 15 MINUTES
05 MARCH 1982 TOYOKAWA 05/0358Z TENFLARE 140 FLUX UNITS 05/0237Z DURATION 40 MINUTES
07 MARCH 1982 BOULDER 07/0350Z SOFLARE X2/2B N17W53 07/0308Z DURATION 42 MINUTES
07 MARCH 1982 BOULDER 07/0339Z TENFLARE 3500 FLUX UNITS 07/0246Z DURATION IN PROGRESS
07 MARCH 1982 TOYOKAWA 07/0418Z TENFLARE 3350 FLUX UNITS 07/0248Z DURATION 60 MINUTES
07 MARCH 1982 TOYOKAWA 07/0558Z TENFLARE 1280 FLUX UNITS 07/0403Z DURATION 100 MINUTES
19 MARCH 1982 TOYOKAWA 19/0008Z TENFLARE 150 FLUX UNITS 18/2136Z DURATION 8 MINUTES
19 MARCH 1982 BOULDER 19/1400Z SOFLARE M2/2B 19/0405Z S06W26 DURATION 148 MINUTES
27 MARCH 1982 TOYOKAWA 27/0250Z TENFLARE 150 FLUX UNITS 27/0211Z DURATION 15 MINUTES
27 MARCH 1982 BOULDER 27/1440Z SOFLARE M4/2B N11E18 27/1408Z DURATION 23 MINUTES
27 MARCH 1982 BOULDER 27/1440Z TENFLARE 200 FLUX UNITS 27/1408Z DURATION IN PROGRESS
30 MARCH 1982 BOULDER 30/0554Z SOFLARE X2/1B N12W10 30/0541Z DURATION 30 MINUTES
30 MARCH 1982 BOULDER 30/0554Z TENFLARE 860 FLUX UNITS 30/0538Z IN PROGRESS
30 MARCH 1982 TOYOKAWA 30/0706Z TENFLARE 1300 FLUX UNITS 30/0522Z DURATION 68 MINUTES
30 MARCH 1982 SYDNEY 30/0600Z SOFLARE LEARMONTH 2B 30/0543Z N13W11 20 PERCENT UMBRAL COVERAGE AND PARALLEL RIBBONS
30 MARCH 1982 SYDNEY 30/0600Z TENFLARE LEARMONTH 2800 FLUX UNITS AT 2695 MHZ, 20,000 FLUX UNITS AT 245MHZ.
31 MARCH 1982 TOYOKAWA 31/0015Z TENFLARE 1300 FLUX UNITS 30/0522Z DURATION 68 MINUTES
31 MARCH 1982 TOYOKAWA 31/2358Z TENFLARE 120 FLUX UNITS 31/2213Z DURATION 7 MINUTES.

RELATIVE SUNSPOT NUMBERS

INTERNATIONAL, R_I

DAY	1981 FINAL JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	1982 PROVISIONAL JAN	FEB	MAR
1	159	148	161	153	112	62	149	121	205	216	165	193	92	258	167
2	141	132	182	170	133	59	140	105	183	206	222	197	94	241	174
3	122	150	169	148	156	44	140	112	160	219	218	212	112	232	175
4	113	126	173	151	152	58	112	109	170	189	221	212	109	221	177
5	94	133	141	146	162	55	112	113	195	195	233	219	99	219	163
6	71	172	147	132	192	57	85	102	220	169	199	234	86	230	165
7	95	158	130	152	171	58	66	107	205	171	192	244	94	226	146
8	108	129	142	195	177	46	62	115	208	185	184	249	97	232	140
9	126	124	124	199	168	58	65	121	190	177	134	258	98	211	116
10	120	157	127	199	148	59	99	138	196	144	147	253	85	199	122
11	123	172	130	200	169	72	130	136	164	131	146	263	46	158	119
12	126	185	128	193	183	79	139	140	138	123	160	240	52	156	135
13	123	143	127	197	149	86	153	134	132	171	158	185	51	162	155
14	106	142	128	180	140	99	145	140	148	187	178	159	58	142	153
15	106	124	110	212	141	111	150	153	129	212	139	113	81	134	140
16	81	129	128	197	127	109	161	134	138	223	126	66	76	111	156
17	72	120	109	213	124	119	171	125	129	219	103	80	111	120	180
18	79	131	95	214	119	104	161	148	145	210	108	79	139	103	168
19	78	138	95	203	100	90	151	175	156	189	90	74	143	107	167
20	88	133	120	199	77	71	145	188	137	183	82	57	134	119	149
21	99	131	135	154	99	87	122	222	175	145	82	65	134	120	153
22	99	128	134	122	106	106	129	220	172	145	73	75	121	100	146
23	115	98	130	103	93	119	162	200	137	118	65	86	93	97	144
24	113	124	125	92	96	109	196	178	135	109	59	68	70	120	122
25	115	137	142	119	93	127	213	189	142	101	60	62	82	115	152
26	120	148	133	90	105	127	206	215	153	92	60	100	119	136	147
27	135	175	126	81	99	133	218	222	181	75	77	104	125	140	182
28	142	170	165	72	93	123	208	214	195	92	130	136	168	145	189
29	165		160	100	92	138	159	194	191	131	148	132	216		169
30	158		152	106	83	161	156	233	190	152	165	112	211		162
31	143		132		92		152	216		156		126	237		132
MEAN	114.0	141.3	135.5	156.4	127.5	90.9	143.8	158.7	167.3	162.4	137.5	150.1	110.7	162.6	153.7

1980 YEARLY MEAN = 154.6

* ZURICH R_Z SUNSPOT NUMBER REPLACED BY INTERNATIONAL R_I SUNSPOT NUMBER BEGINNING WITH JANUARY 1981 DATA.

DAILY SOLAR FLUX AT 2800 MHz
OTTAWA ARO

FLUX ADJUSTED TO 1 A.U., S_a

DAY	1981 JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	1982 JAN	FEB	MAR
1	189.7	207.3	224.4*	210.8*	188.0	149.6	175.4	183.9	248.3	210.6*	222.5*	230.7*	179.9	284.8*	231.3
2	181.4	210.1	230.6*	211.2*	193.4	144.3	168.9	182.6	242.8	204.8*	241.3*	230.3*	177.2	279.7*	228.3
3	173.1	205.4*	238.9*	221.2	206.5*	134.9	163.3*	192.4	229.0	196.5	255.3*	238.6	176.1	272.9*	230.1
4	166.8	197.5	245.6*	219.7	221.2	133.8	165.9	190.6*	233.4	191.1	263.1	241.7	170.4	252.8*	238.3*
5	161.8	187.8	227.3	226.2	237.5	136.0	152.5	178.8	248.7	193.6*	254.1	260.0	165.5	245.2	245.4*
6	157.4	185.4*	212.7	235.7	231.2	140.6	148.7	179.6	263.2*	200.3	244.6	262.1	166.8	245.2	230.0*
7	168.6*	180.5*	201.4	242.3	234.2	146.7	149.8	173.0	262.5*	204.1*	241.4	275.6*	166.9*	239.9	228.3
8	169.2	179.1	200.6*	268.8*	222.4*	146.7*	152.4	178.4	266.3*	200.7*	234.7*	287.8	156.9	245.1*	207.1*
9	167.0	176.7	202.9	287.7	218.6	152.8	150.0*	180.5	256.5	205.4*	232.6	292.4*	164.4	231.7	192.2
10	164.6	185.2	203.1	268.8*	217.7*	157.1	156.5*	182.0	247.6	213.4	231.0*	278.7	145.7	213.7	178.9*
11	160.5	186.4*	199.7	272.1	228.1*	154.8	167.4	206.4	240.8	220.0	217.0	266.7*	136.3	211.1*	178.2
12	156.6	190.6*	188.8	251.9	223.4	152.0	167.7*	209.0*	234.2	236.8*	223.5	254.2*	132.4	204.0*	181.2
13	158.1	197.8	202.1	254.9*	221.3	152.6	174.2*	208.7	230.2	256.2	215.9	218.9	127.5	194.9*	185.5
14	153.9	200.3	208.9	256.5*	232.5	159.1	184.2	208.2	228.7*	275.6	207.4	193.0	130.5	185.3	201.3
15	149.8	193.5	206.3*	254.9*	223.9	164.7	194.5*	225.1	230.4	287.1	191.2	172.6	136.3	180.3	207.6*
16	152.5	186.9	194.9	247.5*	218.9	169.1	205.3*	221.8*	227.5	302.4	181.2	157.4	146.7	170.5	227.7
17	155.3	188.1*	181.5	242.7	207.6	171.2	200.8*	228.7	218.2*	302.9	172.7	144.2	152.6	162.5	230.4
18	161.0	190.2*	180.0	229.2	194.4	170.1	204.7*	244.1	216.5*	296.5*	160.8*	136.3*	167.6	165.7	226.8
19	165.4	178.8	175.1	214.9	186.6*	165.9	220.3	254.6*	210.5*	278.6	157.0	129.7	169.4	170.9*	219.7*
20	159.9*	188.3	182.7	200.9*	180.0	159.8	234.7*	269.8	200.1	257.8*	152.0	133.9	167.0	171.3	217.0
21	156.6	189.9*	189.5	196.1	180.4	153.6	228.1*	267.1*	191.2	238.2	153.9	142.2	163.3	165.2	212.4
22	156.4	199.5	189.4*	191.5	169.3*	166.1*	235.9	262.2*	183.0	218.6	152.7	145.9	152.9	163.7	213.7
23	156.8	217.9*	188.0*	204.9	159.6	171.2*	254.7*	254.8	183.8	208.2	151.9	153.0	148.0	173.1	202.4
24	157.3	231.5*	191.4	203.0*	169.8	174.6	261.6*	258.9	182.2	201.1	150.4	156.1*	149.1	185.9*	189.0
25	169.2*	233.8	199.3	203.8*	177.2	183.6	259.7	254.8	182.0	186.0	159.1	162.1	169.3*	184.1	189.9
26	174.6	238.5	198.6*	198.8	173.8	193.9	273.1*	272.9*	188.8	172.0	178.3*	166.2	182.7*	204.0	192.8*
27	175.8*	235.4	197.6	194.7*	177.0	193.4	255.8*	281.6*	202.8	171.2	190.3	176.8	197.2	222.1	195.4*
28	197.2*	224.9*	203.7*	178.2*	181.3	191.6	223.6	275.3	200.9	182.4	206.4*	183.0	234.7	224.0	200.6
29	204.2	.	212.4*	176.9	170.6	187.5*	213.3	259.1	204.5	187.5	226.5*	183.6	267.0	.	198.0
30	209.1	.	208.2	175.3	164.6*	179.0	204.2*	265.1	203.8	201.5	231.6	185.7	284.5	.	194.5*
31	209.1	.	214.0*	.	156.1	.	197.6	256.0*	.	207.1	.	182.8	289.1	.	184.1
MEAN	169.0	199.5	203.2	224.7	198.9	161.9	198.2	226.0	221.9	222.8	203.3	201.4	173.4	208.9	208.3

* adjusted for burst
A = interpolated data point

DAILY SOLAR INDICES

MARCH 1982

DAY OF MONTH	YEAR DAY	BARTELS 27-DAY CYCLE NUMBER	PROVISIONAL SUNSPOT NUMBERS		OBSERVED FLUX	SOLAR FLUX ADJUSTED TO 1 A.U.								
			R_I	$R_{A'}$	OTTAWA 2800	AFGL 15400	AFGL 8800	AFGL 4995	OTTAWA 2800	AFGL 2695	AFGL 1415	AFGL 606	AFGL 410	AFGL 245
1	60	26	167	169	235.5	617	326	247	231.3	229	198	118	64	
2	61	27	174	176	232.2	614	315	252	228.3	225	201	91	48	
3	62	1	175	176	234.1	631	315	236	230.1	227	194	94	46	
4	63	2	177	178	242.2*	627	331	254	238.3*	249	204	96	45	
5	64	3	163	175	249.4*	626	324	274	245.4*	260	197	87	44	
6	65	4	165	170	233.5*	630	325	246	230.0*	248	192	93	45	
7	66	5	146	156	231.8	548	304	232	228.3	232	181	86	50	
8	67	6	140	126	210.0*				207.1*					
9	68	7	116	115	194.9	603	302	203	192.2	202	167	88	42	
10	69	8	122	121	181.3*	616	292	192	178.9*	189	165	83	38	
11	70	9	119	118	180.5	604	284	189	178.2	188	161	76	43	
12	71	10	135	148	183.4	568	283	194	181.2	191	166	68	39	
13	72	11	155	167	187.8	585	291	203	185.5	190	164	74	44	
14	73	12	153	151	203.5	620			201.3				45	
15	74	13	140	146	209.9*	627	305	231	207.6*	225	174	88	52	
16	75	14	156	161	230.0	619	326	255	227.7	240	189	93	46	
17	76	15	180	177	232.7	615	317	252	230.4	236	188	100	67	
18	77	16	168	165	228.9	611	322	258	226.8	239	184	108	90	
19	78	17	167	168	221.5*	626	320	248	219.7*	230	176	84	55	
20	79	18	149	156	218.7	621	318	242	217.0	226	173	86	52	
21	80	19	153	149	213.9	613	321	240	212.4	223	166	90	60	
22	81	20	146	151	215.2	628	326	234	213.7	218	171	90	55	
23	82	21	144	134	203.6	643	328	228	202.4	203	167	88	54	
24	83	22	122	126	190.1	645	327	221	189.0	197	162	87	52	
25	84	23	152	134	190.9	640	317	220	189.9	198	162	91	48	
26	85	24	147	137	193.6*	631			192.8*			73	45	
27	86	25	182	174	196.2*	641	347	227	195.4*	204	181	119	57	
28	87	26	189	183	201.2	624	333	226	200.6	204	177	105	56	
29	88	27	169	159	198.6	636	333	235	198.0	200	188	98	51	
30	89	1	162	162	194.9*	618	321	217	194.5*	197	182	94	57	
31	90	2	132	123	184.5	602	319	209	184.1	185	164	89	50	
MEAN			153.7	153.3	210.5	618	317	230	208.3	216	178	91	51	

*Adjusted for burst.
NOTE: Data gaps in AFGL Sagamore Hill data are due to equipment problems.

OBSERVED AND PREDICTED SOLAR ACTIVITY INDICES

	SUNSPOT NUMBERS						2800 MHz FLUX adjusted to 1 AU	
	Rz or R_I		Ra		Rs		Sa	
Date	Monthly Mean	Smoothed	Monthly Mean	Smoothed	Monthly Mean	Smoothed	Monthly Mean	Smoothed
Apr 79	101.5	141	95.8	133	127.0	133	175.0	180
May	134.4	147	121.8	139	120.4	139	168.9	186
Jun	149.5	153	136.4	144	138.9	144	186.0	191
Jul	159.4	155	140.5	145	123.1	145	171.4	192
Aug	142.2	155	125.1	144	129.2	145	177.0	192
Sep	188.4	156	184.0	143	156.5	144	202.3	191
Oct	186.2	158	178.2	144	171.7	145	216.4	192
Nov	183.3	162	176.5	149	182.9	149	226.8	196
Dec	176.3	164	157.6	152	151.0	152	197.2	199
Jan 80	159.6	164	145.3	153	153.6	154	199.6	200
Feb	155.0	163	133.9	154	148.7	155	195.1	200
Mar	126.2	161	107.9	153	117.8	153	166.5	200
Apr	164.1	159	138.5	151	164.0	152	209.3	198
May	179.7	156	172.3	149	185.4	151	229.1	197
Jun	157.3	155	153.6	149	153.2	151	199.3	198
Jul	136.3	153	136.0	144	144.1	151	190.8	197
Aug	135.4	150	133.0	144	121.9	150	170.3	196
Sep	155.0	150	150.0	146	138.8	152	185.9	198
Oct	164.7	150	160.8	149	157.1	154	202.9	200
Nov	147.9	148	149.9	149	168.5	153	213.4	199
Dec	174.4	143	167.5	145	174.3	150	218.8	196
Jan 81	114.0	140	115.4	144	120.5	149	169.0	195
Feb	141.3	142	143.7	146	153.5	152	199.5	198
Mar	135.5	143	149.2	149	157.5	156	203.2	202
Apr	156.4	143	169.2	149	180.7	158	224.7	204
May	127.5	143	141.3	149	152.8	159	198.9	204
Jun	90.9	142	99.0	147	112.9	158	161.9	203
Jul	143.8	140*	154.3	146	152.1	157	198.2	203
Aug	158.7	141*	170.4	147	182.1	158	226.0	203
Sep	167.3	143*	174.5	146	177.7	158	221.9	204
Oct	162.4	141(+ 3)*	157.0	144	178.6	156	222.8	---
Nov	137.5	138(+ 7)*	138.8	141	157.6	152	203.3	---
Dec	150.1	134(+ 7)*	145.0	136	155.5	148	201.4	---
Jan 82	110.7†	129(+10)*	110.4	132	124.2	142	173.4	---
Feb	162.6†	125(+11)*	161.0	127	163.6	138	208.9	---
Mar	153.7†	122(+11)*	---	124	163.0	134	208.3	---
Apr	---	119(+11)*	---	121	---	131	---	---
May	---	116(+10)*	---	118	---	128	---	---
Jun	---	112(+11)*	---	114	---	123	---	---
Jul	---	108(+11)*	---	110	---	118	---	---
Aug	---	103(+ 9)*	---	104	---	112	---	---
Sep	---	98(+ 9)*	---	99	---	106	---	---

*An asterisk denotes either a value of the observed 12-month running mean or the predicted 12-month average that is based on preliminary observations of the Zurich and International relative sunspot numbers (R_Z and R_I). Parentheses enclose the 90% confidence limits. Shaded boxes enclose the most recent smoothed values; boxes not shaded enclose predicted values. Ra is the new symbol for R_A'. All tabulated entries of Ra are final values.

†R_I replaces R_Z as of January 1981.

SMOOTHED OBSERVED AND PREDICTED SUNSPOT NUMBERS
CYCLE 21

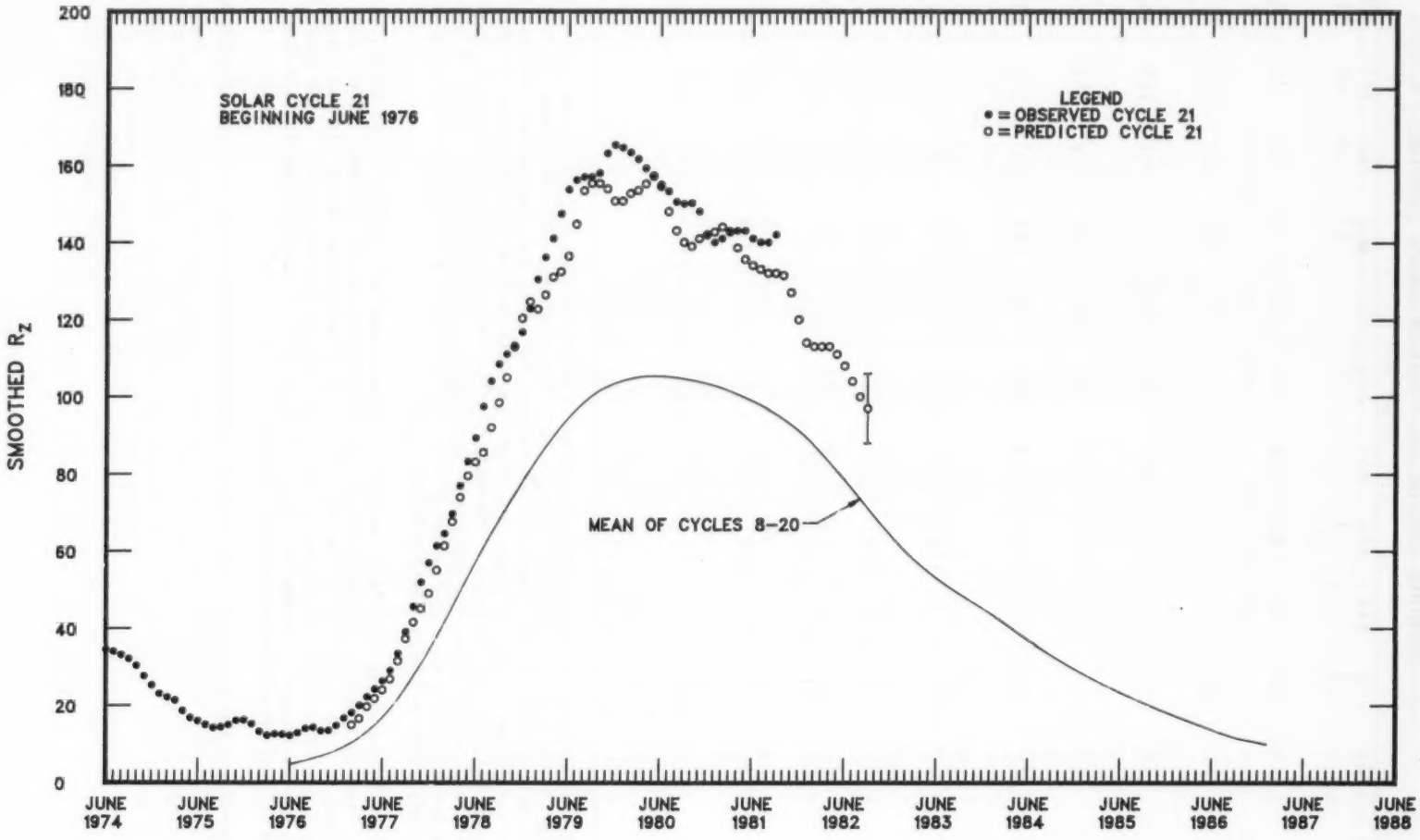
MONTH	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1976	15	13	12	13	13	12	13	14	14	13	14	15
1977	17	18	20	22	24	26	29	33	39	46	52	57
1978	61	65	70	77	83	89	97	104	108	111	113	118
1979	124	131	137	141	147	153	155	155	156	158	162	165*
1980	164	163	161	159	156	155	153	150	150	150	148	143
1981	140	142	143	143	143	142	140	141	143	141	138	134
										(3)	(5)	(7)
1982	129	125	122	119	116	112	108	103	98	92	87	84
	(10)	(11)	(11)	(11)	(10)	(11)	(11)	(9)	(9)	(8)	(9)	(9)
1983	80	77	76	74	71	68	66	65	64	64	63	63
	(9)	(9)	(10)	(12)	(14)	(17)	(18)	(20)	(22)	(23)	(24)	(24)
1984	61	58	55	51	49	49	47	46	44	42	40	38
	(25)	(25)	(25)	(27)	(28)	(29)	(29)	(29)	(29)	(28)	(27)	(26)
1985	37	36	36	36	35	33	32	31	30	29	28	28
	(26)	(25)	(24)	(24)	(24)	(23)	(22)	(21)	(20)	(21)	(22)	(22)
1986	27	26	25	23	22	20	18	17	16	16	15	15
	(23)	(23)	(22)	(22)	(21)	(20)	(20)	(19)	(17)	(16)	(15)	(13)
1987	15	14	15	15	16	17	19					
	(12)	(12)	(12)	(13)	(14)	(15)	(15)					

The table gives observed smoothed sunspot numbers for Cycle 21 up to the one calculated from the latest observed data, marked by a left-hand bracket. They are based on final Zürich numbers through 1980, final International numbers for 1981, and provisional International numbers thereafter. Some of these data after the June 1976 value will change slightly when final data for 1982 are included. The numbers after the bracket are predictions by the McNish-Lincoln method (see Explanation of Data Reports, February 1982). Shown in parentheses are the corresponding absolute values of the 90% confidence interval, an indication of the uncertainty above and below the predicted number.

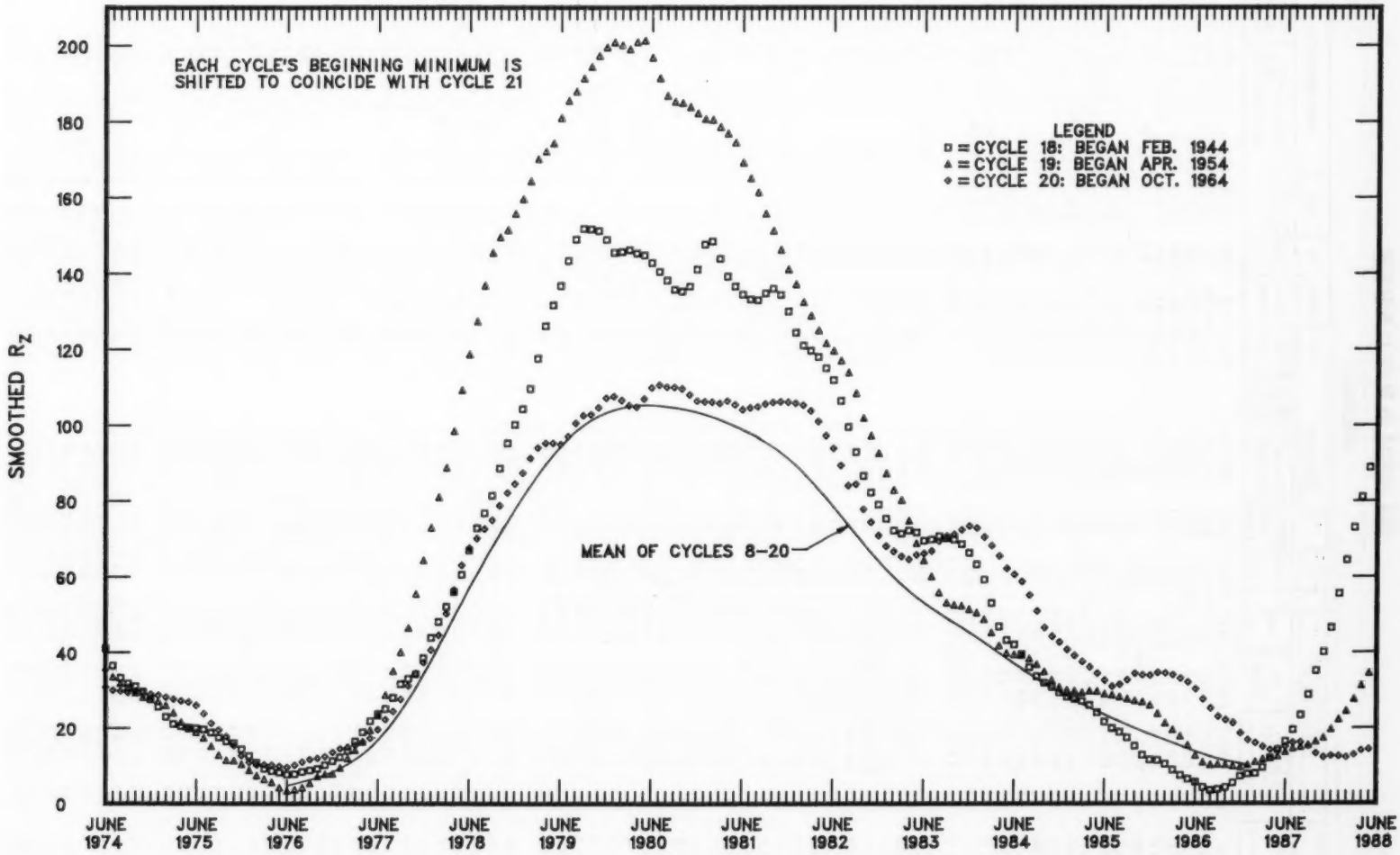
The McNish-Lincoln prediction method is recommended for predictions up to only one year ahead. From that point, the predictions regress rapidly toward the mean value. Furthermore, the method is very sensitive to the identification of a minimum epoch. In SGD issues 390-401, the Cycle 21 predictions were based on March 1976 as the minimum epoch. Later studies, including one published by Waldmeier, show that June 1976 is the more appropriate epoch of minimum. Thus, we adopted a June 1976 minimum.

*MAXIMUM OF SUNSPOT CYCLE 21. The maximum smoothed sunspot number occurred in December 1979.

OBSERVED AND ONE-YEAR-AHEAD PREDICTED SMOOTHED SUNSPOT NUMBERS



SUPERPOSITION OF CYCLES 18, 19, AND 20



15 Mar 82

Hα SOLAR FLARES

MARCH 1982

OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP. DAY	MIN.		CONF.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
LEAR	01	0003	0008U	0017	N12	E15	.412		2.1	14	SN	2	C		96		H
MANI	01	0005E	0006	0010D	N12	E15	.412		2.1	5D	SF	1	V		60	.7	
HOLL	01	0015	0017	0031D	S22	E53	.800		5.0	16D	SN	3	C		35		F
LEAR	01	0016	0017	0050	S22	E54	.809		5.1	34	SN	3	C		48		F
YUNN	01	0203	0212	0247	N17	E16	.484		2.3	44	SN		C		96	1.1	
YUNN	01	0203	0239U	0247	N16	E15	.463		2.2	44	SN		P	0239	64	.7	FK
LEAR	01	0204	0215	0257	N14	E15	.437		2.2	53	SN	3	C		79		K
LEAR	01	0204	0240	0257	N14	E15	.437		2.2	53	SB	3	C		144		E K
PURP	01	0242	0243	0243D	N15	E15	.450		2.2	1D	SF		P	0243	106	1.2	
LEAR	01	0536	0538	0557	S24	E51	.783		5.1	21	SF	3	C		52		F
CATA	01	0825E	0825	0900	N17	E10	.441		2.1	35	1	2	P	0825	281	3.2	
LEAR	01	0826	0832	0852	N16	E12	.440		2.3	26	SB	3	C		124		F
YUNN	01	0827	0835	0851	N18	E12	.467		2.3	24	SB		C		113	1.3	F
LEAR	01	0924	0926	0932	N17	E04	.415		1.7	8	SF	3	C		24		F
CATA	01	0925	0925	0935	N17	E03	.413		1.6	10	S	2	C	0925	140	1.6	
CATA	01	1145	1150	1200	N21	E03	.475		1.7	15	S	1	C	1150	84	1.0	
HOLL	01	1552	1554	1721D	N16	E08	.415		2.3	89D	SN	3	C		173		
PURP	02	0037	0038	0047	S24	E34	.597		4.6	10	SN		C	0038	86	1.1	D
YUNN	02	0041	0043	0047	S22	E33	.574		4.5	6	SB		C		80	1.0	D
LEAR	02	0044	0044	0052	S22	E32	.562		4.4	8	SN	3	C		55		
MANI	02	0046E	0046U	0056D	S23	E41	.674		5.1	10D	SN	1	V		50	.7	
YUNN	02	0048	0053	0057	S14	E41	.654		5.1	9	SN		C		64	.9	
LEAR	02	0052	0053	0056	S14	E41	.654		5.1	4	SN	3	C		35		
LEAR	02	0116	0117	0126	N08	W78	.982		24.2	10	SF	3	C				
LEAR	02	0129	0132	0149	N12	W01	.330		2.0	20	SN	3	C		111		F
YUNN	02	0131E	0131U	0136	N12	W01	.330		2.0	5	SB		P	0131	129	1.4	D
LEAR	02	0335	0338	0344	N12	W02	.331		2.0	9	SF	3	C		88		F
YUNN	02	0652	0744U	0752	S14	E38	.614		5.1	60	SN		P	0744	16	.2	D
YUNN	02	0652	0657	0703	S13	E37	.600		5.1	11	SB		C		32	.4	D
LEAR	02	0658	0658	0704	S14	E37	.601		5.1	6	SN	3	C		43		F
LEAR	02	0742	0744	0753	S14	E37	.601		5.1	11	SN	3	C		31		
YUNN	02	0804	0816	0821D	N14	E11	.405		3.2	17D	SF		P		161	1.8	E
LEAR	02	0806	0810	0843	N13	E10	.383		3.1	37	SN	3	C		58		K
LEAR	02	0806	0825	0843	N13	E10	.383		3.1	37	SN	3	C		74		F K
CATA	02	0810	0815	0905D	N14	E08	.385		2.9	55D	1	2	P	0815	225	2.5	
LEAR	02	0823	0842	0854	S14	E36	.588		5.0	31	SN	3	C		39		
YUNN	02	0836E	0836U	0845	N19	E12	.481		3.3	9	SN		P	0836	32	.4	
YUNN	02	0924	0929	0944	S19	E37	.613		5.2	20	SN		C		16	.2	E
YUNN	02	0932	0936	0944	S15	E36	.589		5.1	12	SB		C		64	.8	
LEAR	02	0933	0934	1022D	S15	E35	.576		5.0	49D	SN	3	C		49		
YUNN	03	0044	0053	0100	N14	W02	.364		2.9	16	SN		C		16	.2	
LEAR	03	0258	0301	0312	N11	W13	.380		2.1	14	SN	3	C		41		F
PURP	03	0259	0300	0309	N11	W13	.380		2.1	10	SN		C	0300	53	.6	E
LEAR	03	0330	0357	0436	S23	E26	.493		5.1	66	1N	3	C		250		F
PURP	03	0336	0344	0423	S23	E27	.505		5.2	47	1B		C	0344	224	2.6	
YUNN	03	0350	0402	0430	S21	E24	.454		5.0	40	SF		C		161	1.9	
LEAR	03	0357	0402	0421	N16	E01	.395		3.2	24	SF	3	C		45		F
LEAR	03	0421	0421	0441	S17	E26	.457		5.1	20	SN	3	C		65		F
YUNN	03	0628	0633	0641	N12	W17	.432		2.0	13	SF		C		16	.2	
LEAR	03	0631	0633	0633D	N11	W15	.400		2.1	2D	SF	3	C		33		F
LEAR	03	0728	0729	0737	N17	E01	.411		3.4	9	SN	3	C		48		
LEAR	03	0754	0757	0800	S21	E24	.454		5.1	6	SF	3	C		32		F
LEAR	03	0917	0918	0927	S17	W46	.718		27.9	10	SF	3	C		22		
LEAR	03	0922	0925	0936	S21	E23	.441		5.1	14	SF	3	C		51		F
CATA	03	1130E	1145	1230D	S20	E22	.420		5.1	60D	1	2	P	1145	253	2.9	
RAMY	03	1639	1641	1648	S23	E26	.493		5.6	9	SB	3	C		122		
HOLL	03	1641	1641	1648	S27	E26	.524		5.6	7	SB	2	C		31		
HOLL	03	1753	1756	1811	N15	W09	.406		3.1	18	SF	2	C		22		
HOLL	03	1756	1803	1807	S13	E18	.319		5.1	11	SF	2	C		54		
HOLL	03	1839	1853	1954	S15	E19	.345		5.2	75	SN	3	C		81		F
HOLL	03	2311	2313	2325	N20	W10	.484		3.2	14	SF	2	C		39		F
MANI	04	0057E	0100	0104	S22	E21	.423		5.6	7	SB	1	V		110	1.2	
YUNN	04	0557	0611	0622D	S18	E11	.262		5.1	25D	SF		P		161	1.7	E
LEAR	04	0600	0603	0633	S20	E12	.297		5.1	33	SN	3	C		79		F
CATA	04	1005	1025	1030D	N20	W22	.571		2.8	25D	S	2	P	1025	140	1.8	
RAMY	04	1425	1426	1431	S07	W29	.481		2.4	6	SF	3	C		40		
RAMY	04	1458	1500	1533	S25	E03	.309		4.8	35	SN	3	C		57		
RAMY	04	1556	1559	1610	S06	W30	.497		2.4	14	SN	3	C		66		
RAMY	04	1559	1559	1610	S25	E03	.309		4.9	11	SF	3	C		24		

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mil. of Disk	CORR. AREA Sq. Deg.	
RAMY	04	1648	1649	1715	S22	E07	.280		5.2	27	SN	3	C		59		
HOLL	04	1649	1649	1700	S23	E07	.295		5.2	11	SF	3	C		37		F
HOLL	04	1717	1721	1728	N14	W22	.507		3.1	11	SF	3	C		28		
HOLL	04	1944	1945	1953	S06	W33	.542		2.3	9	SF	3	C		30		F
PALE	04	2219E	2227U	2243	S19	E05	.220		5.3	24	SF	2	C		88		F
YUNN	05	0044	0056	0130	S12	E01	.085		5.1	46	SN		C	0048	64	.7	
PALE	05	0138	0142	0149	S17	W04	.182		4.8	11	SF	3	C		113		
PALE	05	0142	0143	0157	S18	E01	.187		5.1	15	SF	3	C		34		F
YUNN	05	0204E	0204U	0220	N21	W30	.654		2.8	16	SN		P	0204	113	1.5	FW
LEAR	05	0230	0248	0351	S24	E01	.289		5.2	81	2B	3	C		733		UF
PALE	05	0235	0249	0336	S22	E01	.255		5.2	61	1B	3	C		490		UF
YUNN	05	0240	0247	0317	S24	E02	.290		5.3	37	1B		C		257	2.8	F
LEAR	05	0410	0421	0430	S16	W03	.160		4.9	20	SF	3	C		81		F
YUNN	05	0414	0416	0424	S17	W02	.173		5.0	10	SF		C		16	.2	E
YUNN	05	0524	0528	0532	S13	W02	.106		5.1	8	SF		C		48	.5	E
ISTA	05	0641		0644	N21	W32	.672		2.9	3	SN			0642			D
LEAR	05	0642E	0642U	0653	N20	W30	.645		3.0	11	SN	2	C		54		F
YUNN	05	0644	0645	0653	N22	W32	.681		2.9	9	SF		C		32	.5	D
YUNN	05	0828	0840	0904	N15	W32	.626		3.0	36	SN		C		80	1.1	E
CATA	05	0830	0835	0900	N14	W32	.619		3.0	30	1	2	C	0835	225	3.0	
CATA	05	0840	0840	0915D	S17	W05	.189		5.0	35D	1	2	P	0840	364	3.8	
YUNN	05	0845E	0845	0913	S18	W04	.198		5.1	28	SN		P		193	2.0	FW
MANI	05	0855E	0856	0907	S14	W02	.122		5.2	12	1N	1	V		250	3.1	F
HOLL	05	1619	1644	1723D	S13	W08	.169		5.1	64D	1N	2	C		300		F
HOLL	05	1636	1701	1708	S23	W14	.354		4.6	32	SF	2	C		92		F
HOLL	05	1641	1706	1707	S05	W42	.667		2.5	26	SF	2	C		65		F
HOLL	05	1709	1721	1722	S21	W10	.289		5.0	13	SF	2	C		41		F
HOLL	05	1821	1830	1906	S21	W11	.299		4.9	45	1B	3	C		274		FE
HOLL	05	1825E	1825U	1914D	S12	W09	.175		5.1	49D	SN	2	C		100		F
PALE	05	1901E	1906	1921	S14	W12	.235		4.9	20	SF	3	C		78		F
PALE	05	1938	1942	2011	S13	W10	.198		5.1	33	SN	3	C		140		F
HOLL	05	1946	1946	1955	S13	W11	.212		5.0	9	SN	2	C		47		F
PALE	05	2053	2054	2057D	S22	W11	.312		5.0	4D	SN	3	C		75		F
PALE	05	2055	2056U	2144D	S13	W11	.212		5.0	49D	SN	3	C		80		F
PALE	06	0027	0032	0037	S23	W13	.344		5.0	10	SF	3	C		21		
YUNN	06	0039E	0045	0110	S23	W15	.364		4.9	31	SF		P		16	.2	
PALE	06	0138	0154	0214	S13	W15	.273		4.9	36	SF	3	C		63		K
PALE	06	0138	0142	0214	S13	W15	.273		4.9	36	SF	3	C		25		K
YUNN	06	0159E	0159U	0217	S12	W16	.283		4.9	18	SF		P	0159	32	.3	E
PALE	06	0223	0223	0228	S13	W14	.258		5.0	5	SF	3	C		46		
YUNN	06	0322	0326	0337	S13	W14	.258		5.1	15	SF		C		16	.2	F
YUNN	06	0514E	0514U	0522	S12	W15	.268		5.1	8	SN		P	0514	32	.3	D
MANI	06	0646E	0646U	0654D	S11	W17	.296		5.0	8D	SN	1	V		80	.9	F
CATA	06	0650	0655	0730	S13	W16	.288		5.1	40	1	2	P	0655	253	2.7	
CATA	06	0720	0730	0730	S23	W13	.344		5.3	10	S	2	P	0730	169	1.8	
CATA	06	0745E	0745	0815	S23	W13	.344		5.3	30	1	2	P	0745	197	2.2	
CATA	06	0805	0805	0815	S25	W17	.408		5.1	10	1	2	P	0805	253	2.8	
YUNN	06	0945	0947	1005	S12	W18	.315		5.1	20	SB		C		129	1.4	
YUNN	07	0249	0319	0418	N19	W53	.852		3.1	89	2N		C		498	10.0	K
YUNN	07	0249	0314	0418	N18	W50	.823		3.4	89	3B		C		1286	23.4	FUIH
PALE	07	0308E	0321U	0325D	N17	W53	.845		3.2	17D	2B	2	C		448		ZUK
PALE	07	0308E	0308	0325D	N17	W53	.845		3.2	17D	1B	2	C		340		K
MANI	07	0309E	0309U	0326D	N18	W54	.857		3.1	17D	2B	1	V		400	7.5	FZ
YUNN	07	0358	0408	0418D	N19	W56	.375		3.0	20D	1N		P		161	3.5	E
CATA	07	0830E	0830	0845	N09	E53	.822		11.3	15	1		P	0830	112	2.0	I
HOLL	07	1420E	1420U	1440	N17	W59	.892		3.2	20	SN	3	C		52		
HOLL	07	1524	1544	1608	S06	E08	.140		8.2	44	SF	3	C		85		
HOLL	07	1959	2018	2025	N08	E47	.758		11.4	26	SN	3	C		49		
YUNN	08	0123	0128	0140	N09	E41	.694		11.1	17	SN		C		16	.2	
YUNN	08	0136	0140	0210	S07	E02	.035		8.2	34	SN		C		96	1.0	
YUNN	08	0429	0436	0456	S17	W50	.763		4.4	27	SF		C		16	.3	D
LEAR	08	0515	0519	0522	N16	W66	.936		3.3	7	SF	3	C		18		
WEND	08	1146	1147	1157	S12	E48	.737		12.1	11	SN		C	1147	31	.5	
WEND	08	1305	1308	1323	N17	W68	.948		3.4	18	SN		C	1308	50		
WEND	08	1357	1400	1414	N11	E44	.737		11.9	17	SF		C	1400	50	.7	
LEAR	09	0306	0311	0336	S07	W12	.206		8.2	30	1N	3	C		211		FH
MANI	09	0308E	0308U	0320D	S05	W12	.210		8.2	12D	SN	1	V		120	1.3	FH

Hα SOLAR FLARES

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OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mil. of Disk	CORR. AREA Sq. Deg.	
PURP	09	0310E	0310	0326D	S07	W10	.172		8.4	16D	1N		P	0310	231	2.4	
YUNN	09	0328E	0328U	0330D	S05	W14	.244		8.1	2D	SF		P	0328	32	.3	E
YUNN	09	0354E	0354U	0402	S07	W12	.206		8.3	8	SF		P	0354	16	.2	D
LEAR	09	0403	0404	0407	N16	W78	.987		3.3	4	SF	3	C				
YUNN	09	0510	0518	0530	S05	W16	.277		8.0	20	SF		C		16	.2	D
LEAR	09	0727	0728	0756	S07	W13	.223		8.3	29	SF	3	C		36		F
LEAR	09	0939	0941	1006	N21	W87	1.000		2.9	27	SF	3	C				
LEAR	09	0948	0948	1000	S14	W61	.868		4.8	12	SN	3	C		16		F
CATA	09	1210E	1210	1225	S06	W20	.340		8.0	15	S	2	P	1210	56	.6	
HOLL	09	1433	1434	1512	S14	W68	.920		4.5	39	SN	3	C		75		F
RAMY	09	2005	2008	2018	N02	E20	.374		11.3	13	SN	3	C		104		F
HOLL	09	2006E	2006U	2043D	N02	E22	.404		11.5	37D	SN	3	C		60		F
LEAR	10	0259	0316	0439	S02	E80	.984		16.1	100	1B	3	C				F
MANI	10	0308E	0311U	0315	N01	E85	.996		16.5	7	SN	1	V				FE
PURP	10	0336E	0344	0353D	N01	E83	.993		16.4	17D	1N		C	0344	112		
LEAR	10	0515	0533	0606	S05	E78	.976		16.1	51	SF	3	C				F
LEAR	10	0804	0805	0813	S07	W28	.466		8.2	9	SF	3	C		35		
WEND	10	1207	1231	1306	S05	W31	.514		8.2	59	1N		C	1231	206	2.5	
RAMY	10	1213	1236	1308	S06	W32	.527		8.1	55	1B	3	C		220		
RAMY	10	1707	1709	1720	S23	W71	.938		5.4	13	SF	3	C		22		
RAMY	10	1845	1846	1908	S06	W34	.556		8.2	23	2B	3	C		479		
HOLL	10	1847E	1847U	1850D	S06	W34	.556		8.2	3D	1B	3	C		225		UE
LEAR	11	0255	0256	0308	S02	E65	.906		16.0	13	SF	3	C		34		F
LEAR	11	0318	0322U	0332D	S19	E24	.440		12.9	14D	SF	3	C		102		F
YUNN	11	0318E	0326	0330D	S19	E23	.427		12.9	12D	SN		P		129	1.5	F
PURP	11	0322	0326	0356	S16	E26	.452		13.1	34	1N		C	0326	264	3.0	
LEAR	11	0428	0428	0437	N10	E60	.884		15.7	9	SF	3	C		23		
LEAR	11	0607	0632	0639	S01	E65	.907		16.1	32	SF	3	C		59		F
LEAR	11	0831	0833	0842	S07	W41	.652		8.3	11	SF	3	C		60		F
RAMY	11	1606	1606	1622	N03	E75	.968		17.3	16	SN	3	C				
RAMY	11	1641	1713	1745	N04	E76	.973		17.4	64	SN	3	C				
LEAR	12	0025	0026	0045	S19	E15	.321		13.1	20	SF	3	C		27		F
LEAR	12	0200	0201	0207	S06	W53	.795		8.1	7	SN	3	C		24		
YUNN	12	0314E	0318	0322	S05	W53	.796		8.2	8	SF		P		32	.5	D
LEAR	12	0711	0714	0716	N01	W05	.167		11.9	5	SF	3	C		21		
LEAR	12	0735	0740	0747	N01	W06	.177		11.9	12	SN	3	C		91		F
YUNN	12	0738E	0738U	0738D	N01	W08	.199		11.7		SF		P	0738	48	.5	D
WEND	12	0840E		0853	S18	E11	.262		13.2	13	SF		C	0840	56	.6	
LEAR	12	0950	0951	1010D	N00	W08	.187		11.8	20D	SN	3	C		45		K
LEAR	12	0950	1004	1010D	N00	W08	.187		11.8	20D	SB	3	C		123		FEK
WEND	12	0957	1001	1009	N02	W06	.191		12.0	12	SF		C	1001	50	.5	
YUNN	13	0202	0206	0218	N03	E43	.696		16.3	16	SF		C		64	.9	
YUNN	13	0230	0238	0246	N01	W18	.338		11.8	16	SF		C		32	.4	
LEAR	13	0408	0408	0413	N22	W14	.534		12.1	5	SF	3	C		22		
YUNN	13	0446	0450	0506	N04	E43	.699		16.4	20	SF		C		32	.5	D
CATA	13	1255E	1255	1300D	N03	W31	.538		11.2	5D	S	2	P	1255	84	1.0	
CATA	13	1255E	1255	1300D	N01	W23	.413		11.8	5D	S	2	P	1255	169	1.9	
LEAR	13	2312E	2312U	2319	N01	W28	.487		11.9	7	SF	3	C		30		
LEAR	13	2322	2323	2329	N05	W35	.602		11.3	7	SF	3	C		24		
LEAR	14	0004	0005	0012	N02	W32	.548		11.6	8	SF	3	C		23		F
LEAR	14	0106	0106	0116	N06	E50	.784		17.8	10	SF	3	C		28		F
LEAR	14	0119	0122	0133	N01	W30	.515		11.8	14	SF	3	C		32		
LEAR	14	0232	0241	0345	N03	E50	.776		17.9	73	SN	3	C		69		
LEAR	14	0233	0235	0250	N05	W34	.589		11.6	17	SN	3	C		51		F
CATA	14	0745	0745	0750D	S01	W33	.552		11.8	5D	S	2	P	0745	112	1.4	
LEAR	14	0759	0807U	0829	N06	E47	.751		17.9	30	SB	3	C		82		
LEAR	14	0933	0937	0952	N06	E46	.740		17.8	19	SN	3	C		31		
LEAR	14	0939	0946	0954	N01	W35	.586		11.8	15	SN	3	C		23		F
RAMY	14	1640E	1653	1804	N07	E43	.709		17.9	84	SF	3	C		22		
RAMY	14	1647	1653	1700	N01	W39	.640		11.8	13	SF	3	C		23		
RAMY	14	1758	1759	1805	S06	E36	.585		17.4	7	SF	3	C		21		
RAMY	14	1806	1852	1918	N08	E39	.666		17.7	72	SN	3	C		126		K
RAMY	14	1806	1837	1918	N08	E39	.666		17.7	72	SN	3	C		28		K
RAMY	14	1824	1824	1837	S08	E37	.597		17.5	13	SF	3	C		31		
RAMY	14	1920	1925	1927	N01	W39	.640		11.9	7	SF	3	C		23		
LEAR	14	2311E	2311U	2331	S16	W56	.823		10.8	20	SF	3	C		38		
LEAR	14	2323	2323	2337	N08	W45	.736		11.6	14	SF	3	C		21		F

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
LEAR	15	0032	0033	0040	N05	W43	.702		11.8	8	SN	3	C		26		
YUNN	15	0032	0034	0035	N07	E38	.649		17.9	3	SF		C		80	1.1	D
LEAR	15	0253	0255	0320	N07	W45	.732		11.7	27	SN	3	C		132		F
YUNN	15	0253E	0256	0303	N08	W46	.747		11.7	10	SF		P		32	.5	E
LEAR	15	0345	0350	0404	N06	W47	.751		11.6	19	SF	3	C		47		F
LEAR	15	0434	0436	0440	N06	W51	.794		11.4	6	SF	3	C		60		F
LEAR	15	0649	0653	0711	N03	W51	.787		11.5	22	SN	3	C		77		F
LEAR	15	0725	0726	0731	N08	E30	.552		17.6	6	SF	3	C		122		H
CATA	15	0740	0755	0755D	N04	E34	.584		17.9	15D	S	2	P	0755	56	.7	
YUNN	15	0745	0748	0810	N03	E34	.580		17.9	25	SF		C		48	.6	E
WEND	15	0847	0854	0901	N03	W46	.732		11.9	14	SN		C	0854	30	.4	E
LEAR	15	0849	0850	0904	N02	W49	.763		11.7	15	SF	3	C		23		F
CATA	15	0955E	1000	1010	N11	E28	.549		17.5	15	S	2	P	1000	112	1.4	
WEND	15	0955	0957	1003	N09	E29	.546		17.6	8	SN		C	0957	62	.7	H
WEND	15	1012	1016	1027	N08	W50	.789		11.7	15	SN		C	1016	25	.4	D
WEND	15	1104		1109D	N08	E31	.565		17.8	5D	SF		C	1109	100	1.2	
CATA	15	1105	1105	1140D	N09	E29	.546		17.6	35D	S	2	P	1105	112	1.4	
RAMY	15	1306E	1326	1425	N14	E42	.728		18.7	79	SF	3	C		76		
RAMY	15	1335	1440	1440	N07	E25	.480		17.4	65	SF	3	C		36		F
HOLL	15	1440	1440	1508	N08	W60	.881		11.1	28	SN	2	C		85		F
RAMY	15	1559	1559	1614	S08	E23	.388		17.4	15	SF	3	C		52		
LEAR	15	2324E	2326U	0008	S08	E18	.307		17.3	44	SN	3	C		95		F
MANI	15	2334E	2341	0025D	N09	E17	.397		17.3	51D	1B	1	V		420	4.7	
LEAR	15	2337	2340	0136	N09	E18	.409		17.3	119	1B	3	C		453		FE
YUNN	16	0045E	0055U	0134	N08	E16	.375		17.2	49	1B		P	0055	402	4.5	B
LEAR	16	0057	0101	0109	N06	W58	.860		11.7	12	SN	3	C		35		
PURP	16	0104E	0104	0139D	N12	E15	.411		17.2	35D	1F		V	0104	343	3.9	
LEAR	16	0123	0132	0213	S09	E16	.275		17.3	50	SB	3	C		170		F
YUNN	16	0125	0127	0134	N03	E01	.177		16.1	9	SN		C		161	1.7	E
LEAR	16	0128	0128	0138	N02	E02	.163		16.2	10	SN	3	C		24		
LEAR	16	0129	0133	0141	N13	E36	.657		18.8	12	SN	3	C		26		
YUNN	16	0134E	0140	0200	S07	E16	.274		17.3	26	SN		P		129	1.4	
YUNN	16	0204	0207	0233	N14	E36	.663		18.8	29	SF		C		48	.7	D
LEAR	16	0310	0310	0328	S06	E19	.324		17.6	18	SN	3	C		44		
LEAR	16	0320	0322	0337	N06	W59	.869		11.7	17	SF	3	C		29		F
YUNN	16	0404	0407	0411	N08	E23	.462		17.9	7	SF		C		48	.6	
LEAR	16	0524	0525	0531	N14	E34	.640		18.8	7	SB	3	C		38		E
MANI	16	0525E	0525U	0529D	N15	E35	.658		18.9	4D	SN	1	V		50	.7	
LEAR	16	0610	0639	0653	N13	E35	.645		18.9	43	SN	3	C		62		K
LEAR	16	0610	0613	0653	N13	E35	.645		18.9	43	SN	3	C		25		F K
WEND	16	0810	0812	0816	S08	E15	.257		17.5	6	SF		C	0812	62	.7	
MONT	16	1004	1008	1019	S07	E23	.388		18.1	15	SN		C	1008	100		
CATA	16	1015E	1020	1045D	S07	E22	.372		18.1	30D	S	2	P	1020	84	.9	
MONT	16	1046	1051	1102	N05	W04	.221		16.1	16	SF		C	1051	50		E
WEND	16	1050E		1112	N03	W03	.184		16.2	22	SB		C	1051	50	.5	
RAMY	16	1146E	1210	1220	S08	E10	.173		17.2	34	SN	3	C		60		F
RAMY	16	1248	1248	1256	N04	W06	.219		16.1	8	SF	3	C		26		
WEND	16	1308	1309	1316	N15	W07	.394		16.0	8	SN		C	1309	65	.7	
RAMY	16	1339	1350	1403	S08	E11	.190		17.4	24	SF	3	C		25		
RAMY	16	1943	1944	1947	N06	E15	.341		17.9	4	SN	3	C		30		
RAMY	16	1955	1957	2002	N04	W06	.219		16.4	7	SF	3	C		45		
YUNN	17	0128	0136	0148	N14	E27	.561		19.1	20	SF		C		48	.6	E
LEAR	17	0153E	0156	0202	N12	E27	.544		19.1	9	SB	3	C		46		E
YUNN	17	0153	0155	0206	N12	E26	.532		19.0	13	SN		C		32	.4	D
LEAR	17	0242	0246	0309	S05	E06	.110		17.6	27	1B	3	C		225		UF
LEAR	17	0243	0243	0258	N12	E27	.544		19.1	15	SN	3	C		61		
YUNN	17	0542	0544	0549	S09	W01	.037		17.2	7	SF		C		64	.7	
LEAR	17	0614	0616	0627	S08	E01	.023		17.3	13	SF	3	C		23		F
LEAR	17	0736	0736	0750	N04	W15	.320		16.2	14	SF	3	C		24		
LEAR	17	0957	0959	1003D	N12	E23	.497		19.1	6D	SN	3	C		47		
WEND	17	0958E		1003	N12	E25	.521		19.3	5	SN		C	0958	38	.4	
CATA	17	1000	1000	1015	N12	E23	.497		19.1	15	S	2	C	1000	56	.7	
CATA	17	1115	1115	1200D	S10	E02	.061		17.6	45D	S	2	P	1115	169	1.7	
CATA	17	1115	1115	1200D	S08	W04	.071		17.2	45D	S	2	P	1115	169	1.7	
CATA	17	1150	1150	1200	N19	E01	.441		17.6	10	S	2	P	1150	56	.6	
CATA	17	1240	1240	1250	S04	W07	.133		17.0	10	S	2	C	1240	140	1.5	
RAMY	17	1340	1340	1358	S07	W02	.035		17.4	18	SF	3	C		21		
RAMY	17	1424	1435	1457	N04	W18	.361		16.2	33	SF	3	C		59		
HOLL	17	1425	1427U	1443	N14	E17	.455		18.9	18	SB	2	C		79		F
RAMY	17	1425	1425	1438	N14	E17	.455		18.9	13	SB	3	C		97		

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. HER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mil. of Disk	CORR. AREA Sq. Deg.	
HOLL	17	1444	1444	1448	N04	W18	.361		16.3	4	SF	2	C		32		
HOLL	17	1558E	1558U	1602D	N03	W09	.234		17.0	4D	SB	3	C		155		F
RAMY	17	1600	1601	1617	S07	W04	.069		17.4	17	SN	3	C		42		F
RAMY	17	1603	1608	1616	N14	E17	.455		18.9	13	SF	3	C		21		F
RAMY	17	1640	1657	1711	N07	E01	.245		17.8	31	SF	3	C		27		
RAMY	17	1641	1647	1649	S10	W08	.146		17.1	8	SN	3	C		48		H
RAMY	17	1655	1659	1747	N04	W22	.417		16.1	52	SN	3	C		146		F
HOLL	17	1658E	1658U	1722	N03	W19	.366		16.3	24	SB	3	C		156		F
RAMY	17	1838	1846	1859	S10	W09	.162		17.1	21	SF	3	C		28		
RAMY	17	1904	1913	1915	S08	W06	.105		17.3	11	SF	3	C		23		
RAMY	17	2022	2023	2033	N18	E58	.887		22.2	11	SN	3	C		92		F
LEAR	18	0020	0025	0042	N13	E12	.397		18.9	22	SF	3	C		33		F
LEAR	18	0036	0048	0056	S11	W13	.232		17.0	20	SN	3	C		44		F
LEAR	18	0215	0229	0236	N03	E74	.964		23.6	21	SF	3	C				
LEAR	18	0224	0228	0245	N04	W27	.487		16.1	21	SN	3	C		101		F
LEAR	18	0233	0237	0245	S11	W14	.248		17.1	12	SN	3	C		37		F
LEAR	18	0403	0414	0417D	S14	W17	.310		16.9	14D	1B	3	C		350		FE
LEAR	18	0403	0411	0411D	S11	W14	.248		17.1	8D	1B	3	C		317		FE
YUNN	18	0405	0415	0430	S10	W14	.244		17.1	25	1B		C		321	3.4	F
MANI	18	0411E	0411U	0411D	S09	W13	.225		17.2		SN	1	V		130	1.4	F
YUNN	18	0415E	0415U	0433	S17	W20	.373		16.7	18	SN		P	0415	161	1.8	DG
YUNN	18	0441	0445	0458	N06	W27	.499		16.2	17	SF		C		48	.6	D
LEAR	18	0443	0449	0501	N05	W27	.493		16.2	18	SN	3	C		35		F
LEAR	18	0521	0524	0553	N13	E07	.363		18.7	32	SB	3	C		118		FE
YUNN	18	0525E	0528	0533	N12	E07	.348		18.8	8	1N		P		193	2.1	D
LEAR	18	0527	0529	0544	N17	E53	.845		22.2	17	SB	3	C		87		FE
YUNN	18	0528E	0531	0533D	N19	E54	.859		22.3	5D	SB		P		64	1.3	
LEAR	18	0537	0539	0617	N08	W09	.302		17.6	40	SB	3	C		59		FE
LEAR	18	0630	0632	0648	N08	W09	.302		17.6	18	SN	3	C		50		
LEAR	18	0641	0643	0645	N11	E08	.338		18.9	4	SB	3	C		39		E
MANI	18	0642E	0645U	0648D	N14	E11	.403		19.1	6D	SF	1	V		50	.6	
LEAR	18	0712	0712	0723	N13	E10	.382		19.0	11	SB	3	C		37		FE
LEAR	18	0738	0740	0751	N01	W10	.223		17.6	13	SF	3	C		44		F
LEAR	18	0817E	0817U	0828	S08	W13	.224		17.4	11	SN	3	C		84		
LEAR	18	0845	0859U	0907D	N12	E07	.348		18.9	22D	SN	3	C		63		F
YUNN	18	0847	0853	0924	N14	E08	.384		19.0	37	SN		C		32	.4	
RAMY	18	1209	1209	1215	N05	E64	.906		23.3	6	SN	3	C		30		
CATA	18	1230E	1230	1230D	S03	W14	.251		17.5		S	2	P	1230	112	1.2	
RAMY	18	1333E	1355	1435	S10	W20	.342		17.1	62	1B	3	C		204		
RAMY	18	1553	1555	1612	N05	W35	.601		16.0	19	SN	3	C		51		
RAMY	18	1559	1602	1745	N12	E01	.328		18.7	106	SN	3	C		150		Z
RAMY	18	1613	1613	1620	S04	W14	.247		17.6	7	SN	3	C		33		F
RAMY	18	1742	1744	1748	S08	W18	.307		17.4	6	SF	3	C		23		
PALE	18	2204	2204U	2215D	S06	W23	.389		17.2	11D	SF	2	C		33		
LEAR	19	0154	0157	0200	N01	E63	.894		23.8	6	SF	3	C		35		
LEAR	19	0252	0252	0257	N13	W03	.347		18.9	5	SF	3	C		23		
LEAR	19	0318	0331	0353	S07	W26	.435		17.2	35	SN	3	C		74		F
LEAR	19	0405	0421	0633	S06	W26	.436		17.2	148	SN	0	C		112		K
LEAR	19	0405	0503	0633	S06	W26	.436		17.2	148	2B	0	C		798		FEK
YUNN	19	0437E	0501U	0530	S06	W25	.420		17.3	53	2B		P	0501	964	11.0	F
LEAR	19	0506	0508	0512	N01	E62	.886		23.9	6	SN	3	C		18		
ISTA	19	0720		0724	S07	W23	.388		17.6	4	SF						E
ISTA	19	0734		0738	S04	W23	.392		17.6	4	SF						D
LEAR	19	0744	0745	0752	N08	W21	.435		17.7	8	SF	3	C		35		F
YUNN	19	0756E	0757	0807	N19	E39	.725		22.3	11	SN		P		32	.5	D
ISTA	19	0756		0803	N18	E40	.729		22.3	7	SF						E
LEAR	19	0756	0759	0806	N18	E38	.709		22.2	10	SF	3	C		20		F
LEAR	19	0806	0806	0817	N13	W06	.357		18.9	11	SN	3	C		34		
LEAR	19	0807	0807	0819	N03	E61	.881		23.9	12	SF	3	C		22		
LEAR	19	0848	0849	0859	N01	E60	.869		23.9	11	SN	3	C		49		F
LEAR	19	0856	0858	0902	N00	W42	.675		16.2	6	SN	3	C		24		F
LEAR	19	0917	0926U	0955	S06	W26	.436		17.4	38	SN	3	C		173		F
LEAR	19	0918	0921	0933	N13	W06	.357		18.9	15	SN	3	C		27		F
RAMY	19	1224	1225	1236	S08	W30	.496		17.3	12	SN	3	C		37		
RAMY	19	1253	1303	1419	S08	W27	.451		17.5	86	SN	3	C		99		
RAMY	19	1307	1314	1347	N02	E58	.853		23.9	40	SN	3	C		111		F
RAMY	19	1359	1359	1406	N03	E58	.855		23.9	7	SF	3	C		17		
RAMY	19	1420	1421	1427	S07	W26	.435		17.6	7	SF	3	C		46		
RAMY	19	1424	1425	1454	N02	E57	.844		23.9	30	SN	3	C		72		F
RAMY	19	1435	1442	1452	S06	W31	.512		17.3	17	SN	3	C		75		F

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
RAMY	19	1530	1538	1748	S10	W29	.482		17.5	138	1B	3	C		295		FE
RAMY	19	2057	2100	2102D	S10	W36	.584		17.2	5D	SB	3	C		176		FE
HOLL	19	2058	2100	2145D	S10	W36	.584		17.2	47D	SB	2	C		135		E
RAMY	19	2116	2116	2126	N15	W12	.424		19.0	10	SN	3	C		70		
RAMY	19	2129	2131	2148	S07	W35	.570		17.3	19	SN	3	C		29		
MANI	19	2306	2308	2314	S14	E69	.927		25.1	8	SB	1	V		70	1.5	F
YUNN	20	0105	0109	0121	N14	W51	.817		16.2	16	SN		C		32	.6	
YUNN	20	0105	0109	0116	N01	W31	.529		17.7	11	SN		C		80	1.0	G
LEAR	20	0110	0110	0120	N14	W14	.426		19.0	10	SF	3	C		22		
YUNN	20	0130	0136	0145	N14	W16	.444		18.9	15	SN		C		129	1.5	
LEAR	20	0138	0140	0145	N14	W16	.444		18.9	7	SN	3	C		59		
YUNN	20	0154	0209U	0213	N13	W17	.442		18.8	19	SN		P	0209	32	.4	
YUNN	20	0154	0209U	0216	S07	W40	.639		17.1	22	1N		P	0209	161	2.1	
LEAR	20	0207	0207	0215	S09	W39	.625		17.2	8	SN	3	C		26		
LEAR	20	0250	0250	0255	N14	W16	.444		18.9	5	SN	3	C		46		
LEAR	20	0437	0438	0445	N01	E49	.761		23.9	8	SF	3	C		35		
LEAR	20	0530	0531	0543	N13	W18	.452		18.9	13	SF	3	C		44		
YUNN	20	0530E	0530	0538D	N14	W19	.473		18.8	8D	SN		P		48	.6	
LEAR	20	0607	0615	0642	N13	W18	.452		18.9	35	SN	3	C		116		F
LEAR	20	0658	0702	0747	S10	W41	.651		17.2	49	SN	3	C		137		F
CATA	20	0730	0735	0750	S11	W37	.598		17.5	20	S	2	P	0735	68	.9	
YUNN	20	0734E	0734U	0740D	S08	W40	.638		17.3	6D	SF		P	0734	96	1.3	E
LEAR	20	0946	0946	0951	N14	E62	.906		25.1	5	SF	2	C		23		
RAMY	20	1317E	1317U	1336	N04	E51	.789		24.4	19	SF	3	C		46		
RAMY	20	1318	1325	1338	S10	W45	.702		17.2	20	SF	3	C		34		
RAMY	20	1356	1410	1436	S08	W44	.690		17.3	40	SN	3	C		59		
RAMY	20	1523	1605	1635	N15	W22	.515		19.0	72	SF	3	C		80		
HOLL	20	1525	1526	1535	N16	W21	.516		19.1	10	SF	3	C		21		F
RAMY	20	1533	1536	1539	N04	E40	.662		23.6	6	SF	3	C		30		
HOLL	20	1558	1600	1627	N15	W22	.515		19.0	29	SF	3	C		37		F
HOLL	20	1646	1650	1700	N02	E41	.668		23.8	14	SF	3	C		41		
RAMY	20	1646	1650	1703	N04	E41	.674		23.8	17	SF	3	C		41		
HOLL	20	1829	1831	1837	S06	W49	.751		17.1	8	SF	3	C		26		
HOLL	20	1835	1841	1844	N13	W25	.529		18.9	9	SF	3	C		23		F
RAMY	20	1907	1907	2039D	S10	W44	.689		17.5	92D	SN	3	C		31		
HOLL	20	2048	2053	2059	S13	W19	.336		19.4	11	SF	3	C		21		
HOLL	20	2111	2113	2124	S13	W19	.336		19.5	13	SF	3	C		27		
HOLL	20	2149	2159	2222	S13	W20	.351		19.4	33	SF	3	C		46		F
HOLL	20	2300	2301	2305	S08	W47	.726		17.4	5	SF	3	C		32		
LEAR	20	2329E	2330	2343	S13	W19	.336		19.6	14	SF	3	C		31		
YUNN	21	0106	0107	0135	S05	W54	.806		17.0	29	SN		C		32	.6	E
LEAR	21	0516	0517	0520	S05	W53	.796		17.2	4	SF	3	C		35		
LEAR	21	0621	0622	0629	N04	E32	.556		23.7	8	SF	3	C		63		
LEAR	21	0746	0746	0751	S06	W55	.815		17.2	5	SN	3	C		46		F
LEAR	21	0801	0801	0805	N03	E33	.565		23.8	4	SF	3	C		33		
YUNN	21	0820	0825	0830	N14	W35	.651		18.7	10	SN		C		64	.9	
LEAR	21	0821	0826	0830	N13	W34	.633		18.8	9	SF	3	C		65		
RAMY	21	1144E	1217	1228	S09	W56	.824		17.3	44	SF	3	C		76		
RAMY	21	1337	1356	1410	S09	W59	.852		17.1	33	SN	3	C		28		
RAMY	21	1415	1509	1547	S08	W57	.834		17.3	92	SN	3	C		49		K
RAMY	21	1415	1541	1547	S08	W57	.834		17.3	92	SN	3	C		66		K
RAMY	21	1423	1425	1431	N03	W74	.964		16.0	8	SF	3	C				
RAMY	21	1424	1426	1446	S14	W29	.490		19.4	22	SF	3	C		36		
HOLL	21	1510	1510	1517	S08	W59	.852		17.2	7	SF	3	C		18		
RAMY	21	1536	1536	1546	N04	W73	.960		16.2	10	SF	3	C				
HOLL	21	1618	1627	1634	S06	W60	.862		17.2	16	SF	3	C		22		
HOLL	21	1738	1742	1758	N11	W57	.862		17.5	20	SF	3	C		58		
RAMY	21	1755	1757	1830	N18	E08	.442		22.3	35	SB	3	C		188		
HOLL	21	1755	1757	1828	N17	E07	.423		22.3	33	SB	3	C		165		E
HOLL	21	1859	1905	1933	S04	W62	.881		17.1	34	1B	3	C		265		FE
RAMY	21	1900	1900	1901D	S08	W59	.852		17.4	1D	SB	3	C		56		
PALE	21	1900	1903	1921	S06	W61	.871		17.2	21	SN	3	C		108		F
HOLL	21	2013	2015	2025	N07	W63	.902		17.1	12	SN	3	C		88		H
RAMY	21	2013	2015	2025	N06	W62	.893		17.2	12	SB	3	C		87		
RAMY	21	2020	2022	2030	S10	W61	.869		17.3	10	SB	3	C		68		
HOLL	21	2021	2022	2028	S09	W62	.878		17.2	7	SB	3	C		54		H
HOLL	21	2108	2110	2116	N13	E45	.754		25.3	8	SF	3	C		41		
HOLL	21	2127	2129	2138	S08	W63	.886		17.2	11	SN	3	C		49		
HOLL	21	2148	2150	2155	S10	W36	.584		19.2	7	SN	3	C		56		F
HOLL	21	2152	2159	2203	S08	W63	.886		17.2	11	SF	3	C		15		

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM-POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
HOLL	21	2213	2218	2228	S08	W64	.894		17.1	15	SN	3	C		39		
HOLL	21	2259	2259	2305	N16	W38	.696		19.1	6	SN	3	C		24		
HOLL	21	2321	2321	2325	N00	E22	.391		23.6	4	SF	2	C		33		
HOLL	21	2342	2353	0001	S08	W64	.894		17.2	19	SN	3	C		41		
LEAR	21	2343E	2343U	0045	S06	W61	.871		17.4	62	SF	3	C		73		F
HOLL	22	0006	0016	0021	S08	W65	.902		17.1	15	SF	3	C		20		
YUNN	22	0044	0058	0105	S12	W35	.572		19.4	21	SN		C		161	2.0	E
YUNN	22	0058	0101	0109	S08	W66	.909		17.1	11	1N		C		80		
YUNN	22	0121	0125	0133	N19	E07	.452		22.6	12	SF		C		48	.6	
YUNN	22	0133	0136	0149	S08	W65	.902		17.2	16	SN		C		64	1.5	
YUNN	22	0133	0141	0153	S12	W35	.572		19.4	20	SN		C		113	1.4	E
YUNN	22	0154	0200	0213	N20	E06	.464		22.5	19	SF		C		64	.7	E
YUNN	22	0336E	0336U	0344	S08	W65	.902		17.3	8	1N		P	0336	129	3.1	E
PURP	22	0514	0518	0521	N17	W42	.743		19.1	7	SN		C	0518	26	.4	D
LEAR	22	0515	0516	0520D	N15	W41	.722		19.1	5D	SF	3	C		31		
YUNN	22	0555	0600	0624	N18	E00	.422		22.2	29	1N		C		418	4.8	
LEAR	22	0555	0600	0630	N16	E01	.391		22.3	35	1B	3	C		214		FE
PURP	22	0559E	0600	0628	N18	E03	.425		22.5	29	SB		C	0600	112	1.3	
MANI	22	0603E	0605	0622D	N19	E01	.439		22.3	19D	SB	1	V		140	1.6	F
LEAR	22	0608	0610	0625	N15	W42	.732		19.1	17	SN	3	C		145		F
YUNN	22	0609E	0610	0613	N16	W41	.727		19.2	4	SF		P		64	1.0	
MANI	22	0610E	0610U	0618D	N14	W41	.717		19.2	8D	SN	1	V		50	.8	
PURP	22	0611	0612	0617	N16	W43	.748		19.0	6	SF		C	0612	40	.6	
MANI	22	0651E	0653	0701	N14	W42	.727		19.1	10	SN	1	V		65	1.0	
LEAR	22	0652	0653	0720	N15	W46	.773		18.8	28	SF	3	C		40		F
PURP	22	0653E	0654	0700	N16	W43	.748		19.1	7	SN		C	0654	40	.6	E
YUNN	22	0704	0705	0709	S11	W43	.677		19.1	5	SN		C		64	.9	
LEAR	22	0705	0706	0710	S12	W42	.665		19.1	5	SN	3	C		62		
PURP	22	0706	0707	0709	S11	W39	.625		19.4	3	SN		P	0707	46	.6	H
YUNN	22	0825	0832	0836	S08	W67	.916		17.3	11	SN		C		16		
LEAR	22	0827	0827	0833D	S07	W67	.917		17.3	6D	SN	3	C		18		F
LEAR	22	0830	0832	0833D	N19	E00	.438		22.4	3D	SN	3	C		60		F
YUNN	22	0832E	0832U	0836	N20	E00	.454		22.4	4	SN		P	0832	145	1.7	
YUNN	22	0908	0911	0914	S12	W41	.652		19.3	6	SN		C		48	.7	
LEAR	22	0909	0910	0916	S13	W40	.640		19.4	7	SN	3	C		48		F
YUNN	22	0920	0928	0936	S07	W68	.923		17.3	16	SN		C		32		
RAMY	22	1159	1204	1221	N19	W02	.439		22.3	22	SN	3	C		46		
RAMY	22	1349	1353	1357	N12	E84	.997		28.9	8	SN	3	C				
RAMY	22	1356	1419	1452	N18	W04	.427		22.3	56	SN	3	C		166		F
HOLL	22	1511	1516	1544	S12	W43	.678		19.4	33	SF	3	C		38		
RAMY	22	1531	1602	1609	S11	W43	.677		19.4	38	SF	3	C		45		
HOLL	22	1625	1626	1629	N11	E84	.997		29.0	4	SF	3	C				
RAMY	22	1656	1656	1703	N20	W05	.461		22.3	7	SF	3	C		37		
HOLL	22	1708	1708	1712D	N10	E82	.993		28.9	4D	SF	3	C				
HOLL	22	1725	1726	1729	N17	W51	.827		18.9	4	SF	3	C		19		F
RAMY	22	1746	1836	2015D	S13	W45	.703		19.4	149D	1B	3	C		356		K
HOLL	22	1749	1749	1755	S11	W44	.690		19.4	6	SF	3	C		19		
HOLL	22	1833	1839U	1907	S12	W44	.690		19.5	34	1N	3	C		194		F
HOLL	22	1901	1901	1907	N19	W49	.817		19.1	6	SF	3	C		19		F
RAMY	22	1927	1931	1946	N18	W51	.831		19.0	19	SF	3	C		18		
RAMY	22	1930	1932	1936	N20	W07	.467		22.3	6	SF	3	C		39		
YUNN	23	0140E	0145	0155	N18	W54	.856		19.0	15	1N		P		193	3.8	
LEAR	23	0152E	0152U	0157	N18	W53	.848		19.1	5	SF	2	C		37		
YUNN	23	0210	0215	0218	N09	W81	.991		17.0	8	SF		C		32		
LEAR	23	0210	0212	0225	N08	W79	.985		17.2	15	SF	3	C				
YUNN	23	0320	0324	0328	N08	W82	.993		17.0	8	SF		C		32		D
LEAR	23	0331	0339	0421	N20	W07	.467		22.6	50	SF	3	C		90		F
YUNN	23	0332	0340	0348	N21	W08	.485		22.5	16	SF		C		32	.4	E
LEAR	23	0518	0522	0536	N10	E77	.980		29.0	18	SB	3	C				FE
YUNN	23	0520	0526	0536	N11	E82	.994		29.4	16	1N		C		48		
LEAR	23	0724	0724	0735	N18	W57	.879		19.0	11	SN	3	C		35		
YUNN	23	0724E	0724U	0729	N18	W57	.879		19.0	5	SF		P	0724	16	.3	
LEAR	23	0741	0749	0820	N11	E76	.977		29.0	39	SN	3	C				
RAMY	23	1259	1259	1323	N08	E66	.924		28.5	24	SN	3	C		14		
RAMY	23	1428	1436	1452	N07	E67	.929		28.6	24	SF	3	C		34		
HOLL	23	1926	1928	1935	S13	W60	.860		19.3	9	SF	3	C		16		F
HOLL	23	2123	2131	2135	N05	E63	.899		28.6	12	SN	3	C		41		F
HOLL	23	2145	2148	2211	S13	W61	.868		19.3	26	SN	3	C		111		F
HOLL	23	2240	2242	2245	S12	E57	.833		28.2	5	SF	3	C		20		

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OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
YUNN	24	0036E	0040	0056	N13	E71	.958		29.3	20	SF		P		48		
YUNN	24	0100E	0100U	0104	N19	W67	.945		19.0	4	SF		P	0100	48		D
YUNN	24	0500	0504	0508	N11	E65	.921		29.1	8	SN		C		32		D
YUNN	24	0851E	0856U	0911	N12	E62	.902		29.0	20	SN		P	0856	48	1.1	E
YUNN	24	0928	0931	0940	N12	E64	.916		29.2	12	SN		C		32		D
CATA	24	1040E	1040	1040D	N11	E55	.844		28.6		S	2	P	1040	68	1.3	
WEND	24	1347	1351	1355	N16	E80	.991		30.6	8	SF		C	1351	44		
WEND	24	1626	1629	1633	N11	E59	.878		29.1	7	SF		C	1629	31	.6	
YUNN	25	0042E	0050U	0117	N11	E51	.807		28.9	35	SN		P	0050	96	1.7	
MANI	25	0138E	0139U	0141D	N12	E58	.872		29.4	3D	SN	1	V		80	1.5	
YUNN	25	0143E	0145U	0203	N12	E60	.888		29.6	20	1N		P	0145	113	2.5	F
YUNN	25	0207	0210	0221D	N13	E57	.866		29.4	14D	SN		P		32	.7	D
WEND	25	1227E	1230	1253D	S15	E32	.536		27.9	26D	SF		C	1230	87	1.1	S
WEND	25	1229	1230	1234	N11	E45	.746		28.9	5	SF		C	1230	44	.7	
MANI	26	0209E	0210U	0216D	N09	E28	.531		28.2	7D	SB	1	V		140	1.7	F
MANI	26	0350E	0353	0355D	N14	E45	.758		29.5	5D	SN	1	V		60	1.0	
MANI	26	0554E	0554U	0559D	S20	E71	.939		31.6	5D	SB	1	V		30	.7	
MANI	26	0706E	0707	0718	N09	E30	.557		28.5	12	1B	1	V		200	2.5	FE
WEND	26	0730E	0732	0742	N09	E30	.557		28.6	12	SN		C	0732	25	.3	E
WEND	26	1134	1141	1147	N16	E56	.866		30.7	13	SN		C	1141	38	.7	
WEND	26	1437	1443	1449	N19	W56	.874		22.4	12	SN		C	1443	44	.9	
WEND	26	1447	1449	1504	N14	E40	.705		29.6	17	SN		C	1449	50	.7	
LEAR	27	0212	0213	0346	N13	E28	.561		29.2	94	SB	3	C		91		FE
LEAR	27	0407	0412	0438	S23	E58	.848		31.5	31	SN	3	C		70		
LEAR	27	0409	0411	0428	S10	E11	.197		28.0	19	1B	3	C		221		FH
LEAR	27	0439	0442	0506	S14	E11	.225		28.0	27	SF	3	C		27		F
LEAR	27	0451	0458	0516	N07	E18	.385		28.6	25	SB	3	C		88		FE
LEAR	27	0648	0655	0711	S17	E32	.543		29.7	23	SF	3	C		45		F
BUCA	27	0745		0850	N18	E23	.554		29.0	65	SF		C	0750	107	1.3	E
LEAR	27	0758	0800	0803	S14	W27	.462		25.3	5	SF	3	C		25		
LEAR	27	0913	0915	0948	N11	E22	.473		29.0	35	SB	3	C		111		FE
MONT	27	0913	0918	0941	N14	E22	.502		29.0	28	SF		C	0918	50		E
WEND	27	0915	0915	0936	N11	E22	.473		29.0	21	SN		C	0915	47	.5	E
MONT	27	1009	1014	1031	N09	E16	.382		28.6	22	1B		C	1014	300		
WEND	27	1010	1014	1031	N08	E17	.383		28.7	21	SB		C	1014	88	1.0	
MONT	27	1028	1030	1037D	S10	E15	.262		28.6	9D	SN		C	1030	110		
WEND	27	1031	1031	1045	S09	E15	.259		28.6	14	SN		C	1031	41	.4	
WEND	27	1125	1127	1135	S08	E14	.241		28.5	10	SF		C	1127	9	.1	
HOLL	27	1409	1415	1544	N11	E19	.438		29.0	95	1B	3	C		473		FE
RAMY	27	1410	1520	1547	N11	E18	.427		28.9	97	1B	3	C		212		K
RAMY	27	1410	1418	1547	N11	E18	.427		28.9	97	2B	3	C		587		FEK
WEND	27	1421E	1423	1527	N11	E19	.438		29.0	66	1B		C	1423	138	1.5	
RAMY	27	1547	1548	1557	S10	E11	.197		28.5	10	SF	3	C		71		
HOLL	27	1547	1549	1558	S10	E12	.213		28.6	11	SF	3	C		65		
WEND	27	1548	1550	1558	S09	E09	.160		28.3	10	SF		C	1550	28	.3	
HOLL	27	1745	1750	1755	S23	E52	.793		31.6	10	SF	3	C		18		
HOLL	27	1821	1843	1909	N11	E17	.416		29.0	48	SN	3	C		114		F
HOLL	27	1948	2020	2057	N11	E15	.394		28.9	69	SN	3	C		88		F
HOLL	27	2128	2128	2148	N08	W29	.537		25.7	20	SF	3	C		47		F
HOLL	27	2143	2143	2148	N06	E09	.270		28.6	5	SF	3	C		26		
HOLL	27	2202	2206	2233	N10	E16	.393		29.1	31	SN	3	C		78		F
HOLL	27	2304	2304	2315	S23	E51	.783		31.8	11	SF	3	C		39		F
LEAR	28	0205	0205	0216	S11	E06	.127		28.5	11	SF	3	C		31		
LEAR	28	0220	0226	0233	N06	E06	.243		28.5	13	SN	3	C		32		F
LEAR	28	0304	0307	0321	S11	E05	.113		28.5	17	1B	3	C		319		FE
LEAR	28	0432	0440	0457	S27	E46	.744		31.6	25	SB	3	C		76		FEK
LEAR	28	0432	0434	0457	S27	E46	.744		31.6	25	SB	3	C		100		K
LEAR	28	0547	0559	0623	N10	E11	.342		29.1	36	SB	3	C		130		FE
LEAR	28	0611	0621	0628	S11	E03	.090		28.5	17	SF	3	C		30		
LEAR	28	0625	0653	0844	N13	E15	.419		29.4	139	1B	3	C		261		ZU
BUCA	28	0653E	0655	0825	N12	E16	.416		29.5	92	2N		C	0655	644	7.3	U
ISTA	28	0700E		0745	N13	E15	.419		29.4	45	1B						FZ
LEAR	28	0718	0721	0730	S13	E03	.120		28.5	12	SN	3	C		35		
ISTA	28	0720		0723	S13	E04	.129		28.6	3	SF						D
LEAR	28	0811	0815	0828	S15	W20	.363		26.8	17	SF	3	C		57		F
YUNN	28	0816E	0817U	0817D	S15	W21	.378		26.8	1D	SF		P	0817	32	.4	E
LEAR	28	0903	0909	0945D	N10	E06	.305		28.8	42D	1B	3	C		215		K
LEAR	28	0903	0928	0945D	N10	E06	.305		28.8	42D	1B	3	C		261		FEK

Hα SOLAR FLARES

MARCH 1982

OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM-POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
YUNN	28	0909E	0911	0917	N07	E01	.238		28.5	8	SN		P		80	.9	E
CATA	28	0910E	0910	0920D	N07	E01	.238		28.5	10D	S	2	P	0910	56	.6	
YUNN	28	0916	0920	0924	N11	E06	.321		28.8	8	SN		C		177	1.9	
YUNN	28	0926	0927	0943	N11	E08	.333		29.0	17	1N		C		257	2.8	
YUNN	28	1005	1006	1014D	S20	E38	.631		31.3	9D	1N		P		161	2.1	
RAMY	28	1156E	1159	1222	N14	W43	.737		25.3	26	SN	3	C		69		UF
RAMY	28	1307	1308	1434	S20	E41	.668		31.6	87	SN	3	C		26		K
RAMY	28	1307	1322	1434	S20	E41	.668		31.6	87	1N	3	C		300		FEK
RAMY	28	1337	1339	1408	N10	E07	.311		29.1	31	SB	3	C		139		
RAMY	28	1408	1409	1415	S12	W02	.098		28.4	7	SF	3	C		35		
HOLL	28	1557	1614	1631	S16	E44	.695		1.0	34	SF	3	C		65		F
RAMY	28	1558	1641	1713	S15	E43	.681		31.9	75	SN	3	C		124		
HOLL	28	1614	1614	1620	N11	W01	.305		28.6	6	SF	3	C		28		
HOLL	28	1636	1644	1658	S16	E44	.695		1.0	22	SN	3	C		57		F
HOLL	28	1658	1709	1710	N12	E06	.337		29.2	12	SF	3	C		26		
HOLL	28	1714	1714	1715	N11	W01	.305		28.6	1	SF	3	C		53		
HOLL	28	1732	1734	1739	N12	E00	.321		28.7	7	SN	3	C		76		
HOLL	28	1936	1942	1947	N13	E08	.363		29.4	11	SF	3	C		36		F
HOLL	28	1948	1948	1954	N11	E02	.307		29.0	6	SF	3	C		51		F
HOLL	28	1958	2001	2010	N12	E06	.337		29.3	12	SN	3	C		153		F
HOLL	28	2125	2134	2144	S22	E38	.639		31.7	19	SF	3	C		155		F
LEAR	28	2334E	2359	0044	N09	W01	.272		28.9	70	SN	3	C		111		F
HOLL	28	2358	2358	0001D	N12	W00	.321		29.0	3D	SF	3	C		25		F
YUNN	29	0034	0038	0046	S15	W26	.451		27.1	12	SN		C		129	1.5	
YUNN	29	0114	0117	0134	S16	E11	.246		29.9	20	SN		C		80	.9	D
YUNN	29	0140	0146	0154	N09	W08	.303		28.5	14	SN		C		64	.7	D
YUNN	29	0146	0154	0159	S15	W27	.466		27.0	13	SN		C		64	.7	
YUNN	29	0318	0322	0332	N08	W02	.256		29.0	14	SN		C		80	.9	
YUNN	29	0343	0359	0417	N08	W02	.256		29.0	34	SN		C		161	1.7	KI
YUNN	29	0355	0406	0415	S20	E35	.594		31.8	20	1B		C		209	2.7	GHKI
YUNN	29	0406	0412	0415	S15	W28	.480		27.1	9	SN		C		96	1.1	EK
YUNN	29	0416E	0417	0422	S13	W09	.189		28.5	6	SN		P		193	2.0	C
YUNN	29	0418	0432	0440	S15	W28	.480		27.1	22	SN		C		113	1.3	
YUNN	29	0428	0430	0434	S29	E45	.742		1.6	6	SF		C		64	1.0	G
YUNN	29	0434	0440	0503	N14	E04	.360		29.5	29	SN		C		96	1.1	K
YUNN	29	0641E	0646U	0646D	N18	E18	.506		30.6	5D	SF		P	0646	32	.4	D
BUCA	29	0804		0809D	S14	W09	.199		28.7	5D	SN		C	0805	107	1.1	D
YUNN	29	0806E	0806	0811	S14	W09	.199		28.7	5	SF		C		161	1.7	
YUNN	29	0908E	0910	0922	N09	W07	.295		28.9	14	2N		P		595	6.4	FT
YUNN	29	0918	0921	0930	S16	W31	.526		27.1	12	SN		C		161	1.9	T
YUNN	29	0942	0948	0950D	N11	W08	.332		28.8	8D	SN		P		129	1.4	FT
RAMY	29	1757	1818	1827D	N13	W12	.391		28.8	30D	SN	3	C		102		
RAMY	29	1809	1817	1827D	S15	W36	.591		27.1	18D	1B	3	C		218		FE
LEAR	29	2318	2342	0015	N16	E32	.629		1.4	57	SN	3	C		134		F
MANI	29	2333E	2334	2340D	N19	E35	.682		1.6	7D	SN	1	V		40	.6	
LEAR	30	0027	0035	0042	N16	E32	.629		1.4	15	SF	3	C		29		F
YUNN	30	0125	0135	0145	N09	W16	.380		28.9	20	SN		C		96	1.1	ET
YUNN	30	0153	0155	0200	N09	W15	.369		29.0	7	SF		C		48	.5	DT
YUNN	30	0221E	0221U	0225	N09	W22	.453		28.4	4	SN		P	0221	80	.9	DT
YUNN	30	0231	0233	0240	N09	W23	.466		28.4	9	SN		C		96	1.1	T
LEAR	30	0233	0233	0244	N09	W23	.466		28.4	11	SN	3	C		36		FH
YUNN	30	0235	0239	0255	N16	E30	.607		1.4	20	1B		C		161	2.1	
LEAR	30	0236	0240	0314	N16	E30	.607		1.4	38	1B	3	C		182		FE
LEAR	30	0238	0240	0251	S20	E16	.350		31.3	13	SN	3	C		49		F
PURP	30	0239E	0239	0246	S21	E16	.360		31.3	7	SB		P	0239	66	.7	E
YUNN	30	0239E	0239	0247	S20	E15	.338		31.2	8	SN		C		64	.7	D
PURP	30	0239E	0239	0257	N17	E30	.615		1.4	18	SB		C	0239	139	1.8	
LEAR	30	0313	0313	0321	N19	W17	.510		28.9	8	SF	3	C		25		
YUNN	30	0425E	0425	0437	N09	W19	.416		28.8	12	SN		C		113	1.3	ET
YUNN	30	0521	0543	0708D	N12	W12	.377		29.3	107D	3B		P		1286	14.3	FKIW
LEAR	30	0522	0524	0826D	N13	W11	.383		29.4	184D	SB	3	C		151		K
LEAR	30	0522	0549U	0826D	N13	W11	.383		29.4	184D	3B	3	C		1202		ZUK
PURP	30	0524	0535	0734	N15	W09	.398		29.5	130	2B		C	0535	884	9.9	ZWI
LEAR	30	0524	0541	0617	N11	E01	.304		30.3	53	1B	3	C		503		F
YUNN	30	0524	0529	0545	N10	W01	.287		30.2	21	1B		C		402	4.3	FKW
YUNN	30	0557	0601	0626	N09	W26	.504		28.3	29	2B		C		450	5.4	FT
YUNN	30	0607	0609	0632	N26	E04	.543		30.6	25	SF		C		64	.8	G
ISTA	30	0625E		0725	N11	W15	.393		29.1	60	1N						E
MANI	30	0656E	0656U	0710D	N10	W14	.370		29.2	14D	SN	1	V		80	.9	
YUNN	30	0701	0708	0732	N09	W19	.416		28.9	31	SN		C		113	1.3	ET

Hα SOLAR FLARES

MARCH 1982

OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mil. of Disk	CORR. AREA Sq. Deg.	
LEAR	30	0711	0716	0743	N17	E27	.583		1.3	32	SB	3	C		161		FE
MANI	30	0713E	0716	0717D	N18	E28	.602		1.4	4D	SB	1	V		100	1.3	F
YUNN	30	0720E	0724	0732D	N17	E27	.583		1.3	12D	SN		P		96	1.2	E
LEAR	30	0804	0809	0821	S20	E13	.315		31.3	17	SN	3	C		42		F
RAMY	30	1152	1222	1248	S22	E19	.405		31.9	56	1N	3	C		309		
RAMY	30	1326	1329	1341	S15	W47	.729		27.0	15	SN	3	C		50		
RAMY	30	1418	1426	1504	N07	W23	.449		28.9	46	1B	3	C		231		FE
HOLL	30	1418E	1424U	1425D	N11	W20	.448		29.1	7D	1B	2	C		350		FE
HOLL	30	1506	1510	1518	S09	W35	.570		28.0	12	SF	2	C		24		
HOLL	30	1545	1601	1638D	N09	W26	.504		28.7	53D	SN	2	C		140		F
RAMY	30	1545	1647	1732	N07	W25	.476		28.8	107	SN	3	C		99		F K
RAMY	30	1545	1604	1732	N07	W25	.476		28.8	107	SN	3	C		91		K
HOLL	30	1600	1604	1618	S15	W51	.774		26.8	18	SF	2	C		23		F
RAMY	30	1602	1625	1643	S14	W49	.751		27.0	41	SF	3	C		26		
RAMY	30	1644	1648	1811	N17	E22	.532		1.3	87	SN	3	C		116		
RAMY	30	1817	1821	1823D	S20	E07	.258		31.3	6D	SN	3	C		42		
MANI	30	2340E	2341	2347D	N12	W28	.552		28.9	7D	1B	1	V		230	2.9	FE
MANI	31	0042E	0046U	0048D	N12	W26	.528		29.1	6D	SF	1	V		60	.7	F
LEAR	31	0042	0042U	0052D	N11	W25	.507		29.2	10D	1N	3	C		223		F
YUNN	31	0124	0130	0143	N09	W34	.606		28.5	19	SN		C		80	1.0	ET
LEAR	31	0126E	0136U	0158	N10	W32	.587		28.7	32	SB	2	C		122		FE
LEAR	31	0156	0209	0233	S22	E08	.296		31.7	37	1N	3	C		203		F
PURP	31	0203	0204	0208	N09	W37	.643		28.3	5	SN		C	0204	106	1.4	E
LEAR	31	0203E	0205	0212	N08	W36	.626		28.4	9	SN	3	C		141		F
YUNN	31	0203E	0205	0210	N09	W38	.656		28.2	7	1N		P		354	4.8	FT
YUNN	31	0206	0207	0210D	S21	E08	.281		31.7	4D	SN		P		32	.3	E
PURP	31	0206	0208	0218	S22	E09	.304		31.8	12	SB		C	0208	33	.4	E
YUNN	31	0225	0300	0311	N18	E16	.488		1.3	46	SF		C		64	.8	
YUNN	31	0227	0231	0247	N08	W32	.575		28.7	20	1N		C		241	3.0	T
LEAR	31	0228E	0229U	0301	N08	W30	.549		28.9	33	1B	2	C		262		FE
LEAR	31	0302	0302	0308	S16	W16	.313		29.9	6	SF	3	C		51		
YUNN	31	0313E	0313U	0315	N08	W32	.575		28.7	2	1N		P	0313	386	4.9	T
LEAR	31	0320	C322	0332	N17	E16	.476		1.3	12	SF	3	C		55		
YUNN	31	0407	0412	0433	N08	W36	.626		28.5	26	2N		C		418	5.6	T
LEAR	31	0410	0414	0436	N08	W35	.613		28.5	26	SB	3	C		158		FEK
LEAR	31	0410	0423	0436	N08	W35	.613		28.5	26	SB	3	C		37		K
LEAR	31	0533	0533	0652	N11	W33	.606		28.8	79	SB	3	C		76		K
LEAR	31	0533	0620	0652	N11	W33	.606		28.8	79	SB	3	C		133		FEK
YUNN	31	0538E	0540	0542D	N08	W35	.613		28.6	4D	2N		P		482	6.3	FT
YUNN	31	0612E	0618	0631D	N08	W36	.626		28.6	19D	2N		P		579	7.7	BFT
YUNN	31	0744	0751	0755	N08	W38	.651		28.5	11	SN		C		80	1.1	ET
YUNN	31	0744	0751	0755	S17	W18	.349		30.0	11	SF		C		64	.7	E
BUCA	31	0830	0836	0856	N09	W37	.643		28.6	26	2B		C	0836	430	5.8	U
LEAR	31	0831	0837	0858	N08	W39	.663		28.4	27	SB	3	C		181		UF
RAMY	31	1229E	1232	1237	N18	E14	.473		1.6	8	SF	3	C		22		
RAMY	31	1229E	1229U	1240	N05	W39	.651		28.6	11	SN	3	C		87		
RAMY	31	1243	1244	1251	N08	W41	.687		28.5	8	SF	3	C		22		
RAMY	31	1253	1311	1442	S21	W02	.251		31.4	109	SN	3	C		162		
RAMY	31	1442	1450	1510	N07	W39	.659		28.7	28	SN	3	C		52		
RAMY	31	1511	1516	1529	N08	W41	.687		28.6	18	SB	3	C		74		FE
RAMY	31	1511	1512	1521	N17	E10	.432		1.4	10	SF	3	C		29		
RAMY	31	1533	1551	1553D	N08	W42	.699		28.5	20D	SB	3	C		81		K
RAMY	31	1533	1534	1553D	N08	W42	.699		28.5	20D	SN	3	C		57		K
HOLL	31	1533	1551	1606	N09	W43	.715		28.4	33	SB	3	C		56		E
RAMY	31	1541	1541	1550	S21	W04	.257		31.4	9	SN	3	C		37		
RAMY	31	1551	1603	1658	S15	W62	.877		27.0	67	SN	3	C		43		
RAMY	31	1554	1554	1614	S21	W05	.262		31.3	20	SB	3	C		83		
HOLL	31	1556	1556	1605	S22	W05	.278		31.3	9	SF	3	C		39		F

Hα SOLAR FLARES

MARCH 1982

OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mil. of Disk	CORR. AREA Sq. Deg.	
RAMY	31	1628	1631	1633	S14	W43	.680		28.5	5	SF	3	C		21		
HOLL	31	1628	1629	1633	S13	W44	.692		28.4	5	SF	2	C		22		
HOLL	31	1641	1642	1644	N20	W48	.811		28.1	3	SF	3	C		19		
RAMY	31	1714	1715	1725	S21	W04	.257		31.4	11	SB	3	C		144		E
HOLL	31	1716	1717	1724	S20	W05	.246		31.3	8	SN	3	C		66		
HOLL	31	1727	1729	1735	S12	W44	.691		28.4	8	SF	3	C		37		
HOLL	31	1812	1820	1832	N09	W44	.726		28.5	20	SF	3	C		20		F
HOLL	31	2120	2124	2135	N08	W43	.711		28.7	15	SN	3	C		60		

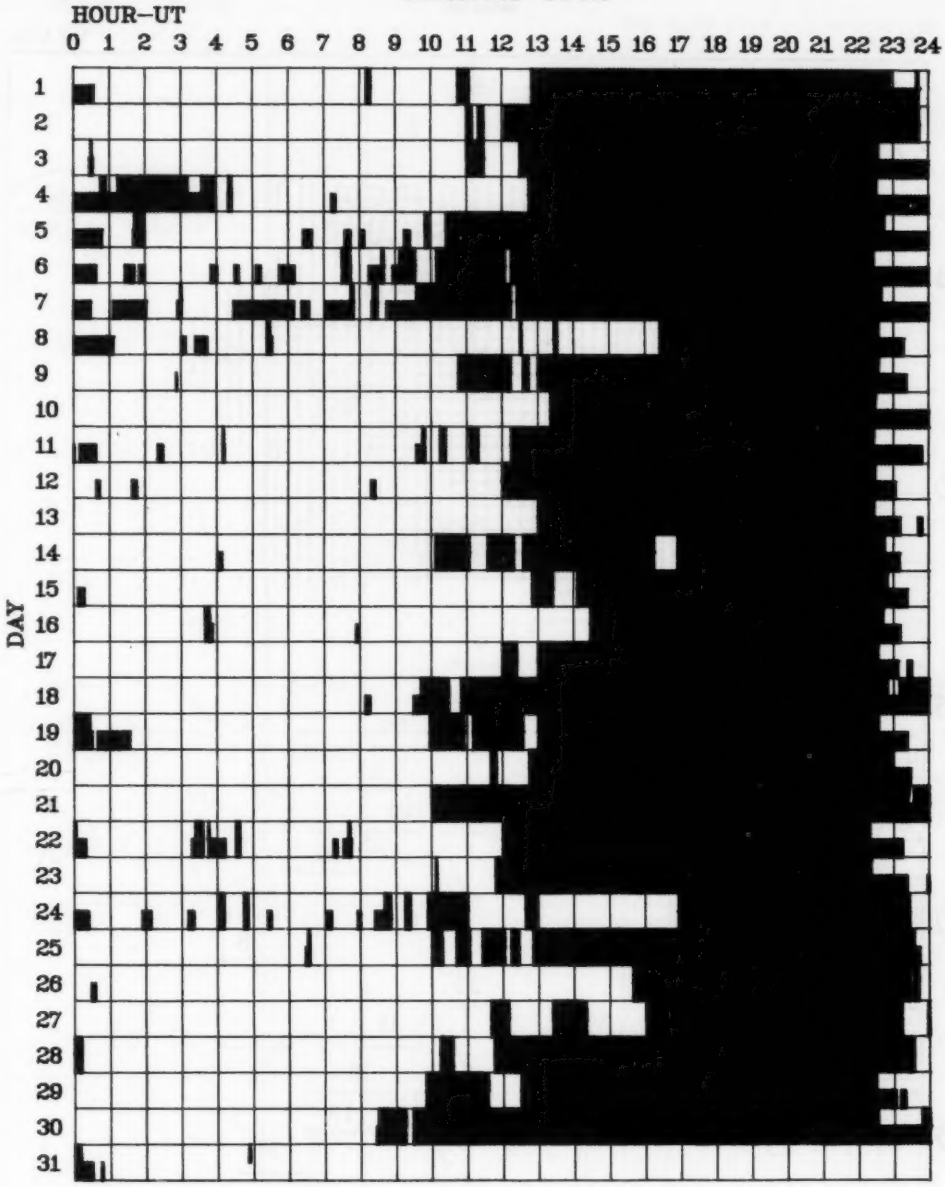
"REMARKS":

A = Eruptive prominence whose base is less than 90° from central meridian.
B = Probably the end of a more important flare.
C = Invisible 10 minutes before.
D = Brilliant point.
E = Two or more brilliant points.
F = Several eruptive centers.
G = No visible spots in the neighborhood.
H = Flare accompanied by high-speed dark filament.
I = Active region very extended.
J = Distinct variations of plage intensity before or after the flare.
K = Several intensity maxima.
L = Existing filaments show signs of sudden activity.
M = White-light flare.
N = Continuous spectrum shows effects of polarization.
O = Observations have been made in the H and K lines of CaII.
P = Flare shows helium D3 in emission.
Q = Flare shows Balmer continuum in emission.
R = Marked asymmetry in H-alpha line suggests ejection of high-velocity material.
S = Brightness follows disappearance of filament in same position.
T = Region active all day.
U = Two bright branches, parallel or converging.
V = Occurrence of an explosive phase: important, expansion within roughly 1 minute that often includes a significant intensity increase.
W = Great increase in area after time of maximum intensity.
X = Unusually wide H-alpha line.
Y = System of loop-type prominences.
Z = Major sunspot umbra covered by flare.

INTERVALS OF NO FLARE PATROL OBSERVATION

FOR PRECEDING SOLAR FLARE TABLE

MARCH 1982



Observatories included in total patrol:

Bucharest	Holloman	Learmonth	Palehua	Ramey
Catania	Istanbul	Manila	Peking	Wendelstein
		Monte Mario	Purple Mt.	Yunnan

Times of no flare patrol are shown by the shaded area for each day divided into times of no cinematographic patrol (bottom half of day) and times of neither visual nor cinematographic patrol (top half of day).

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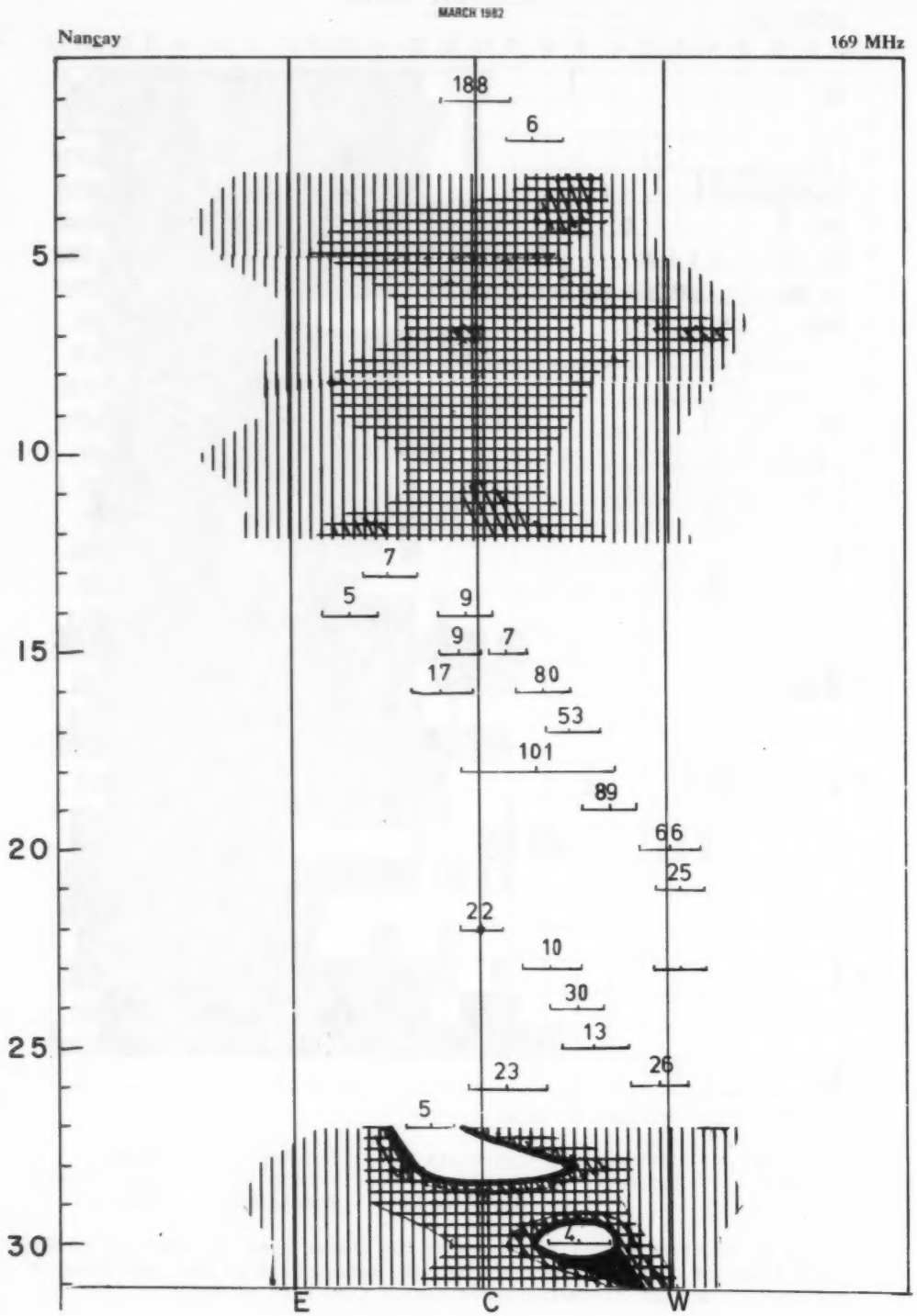
Mar 82

SOLAR RADIO EMISSION
INTERFEROMETRIC OBSERVATION

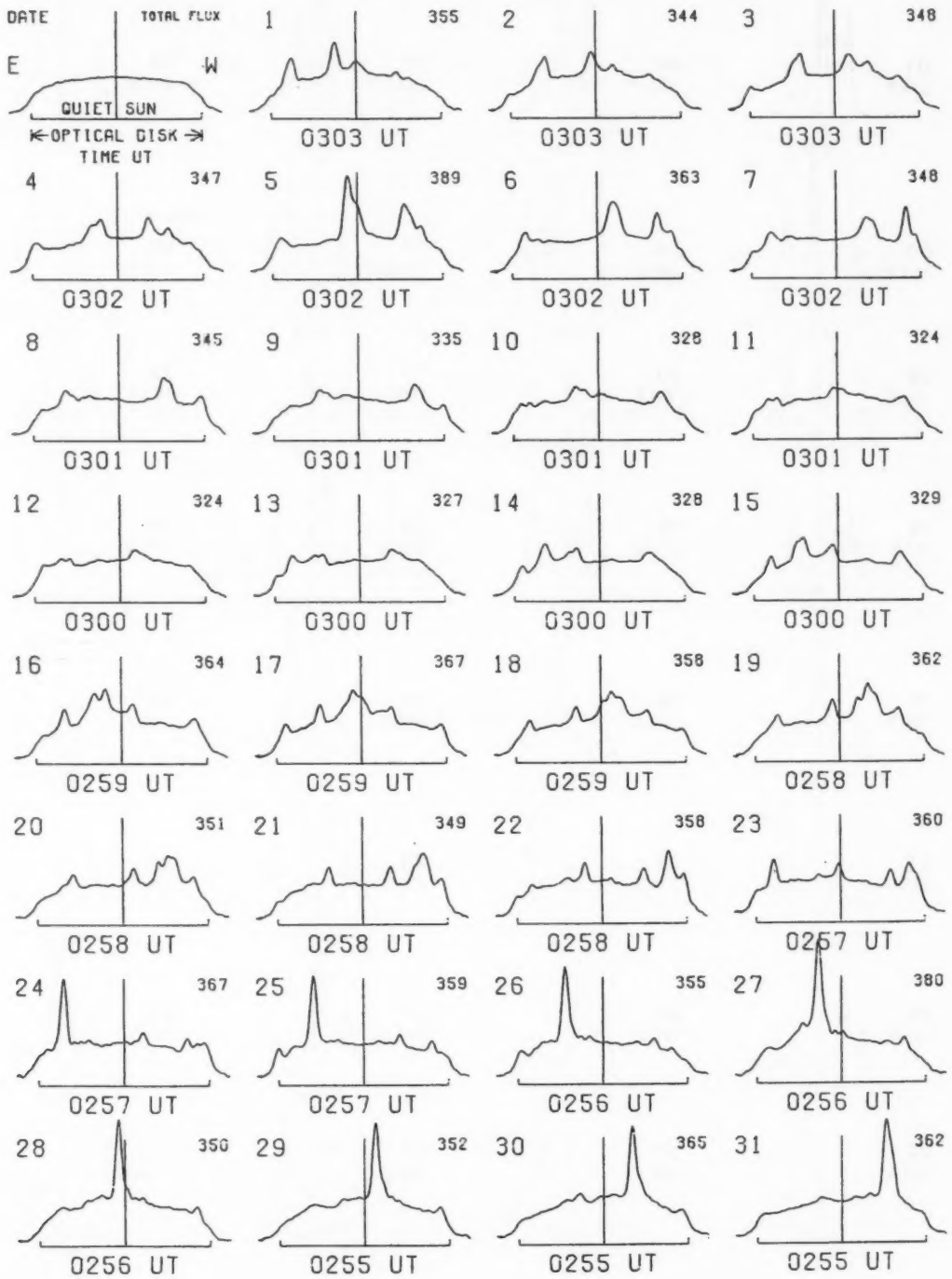


EAST-WEST SOLAR SCANS

MARCH 1982

TOYOKAWA, JAPAN

3 CM
FAN BEAM WITH 1.1 MINUTES OF ARC



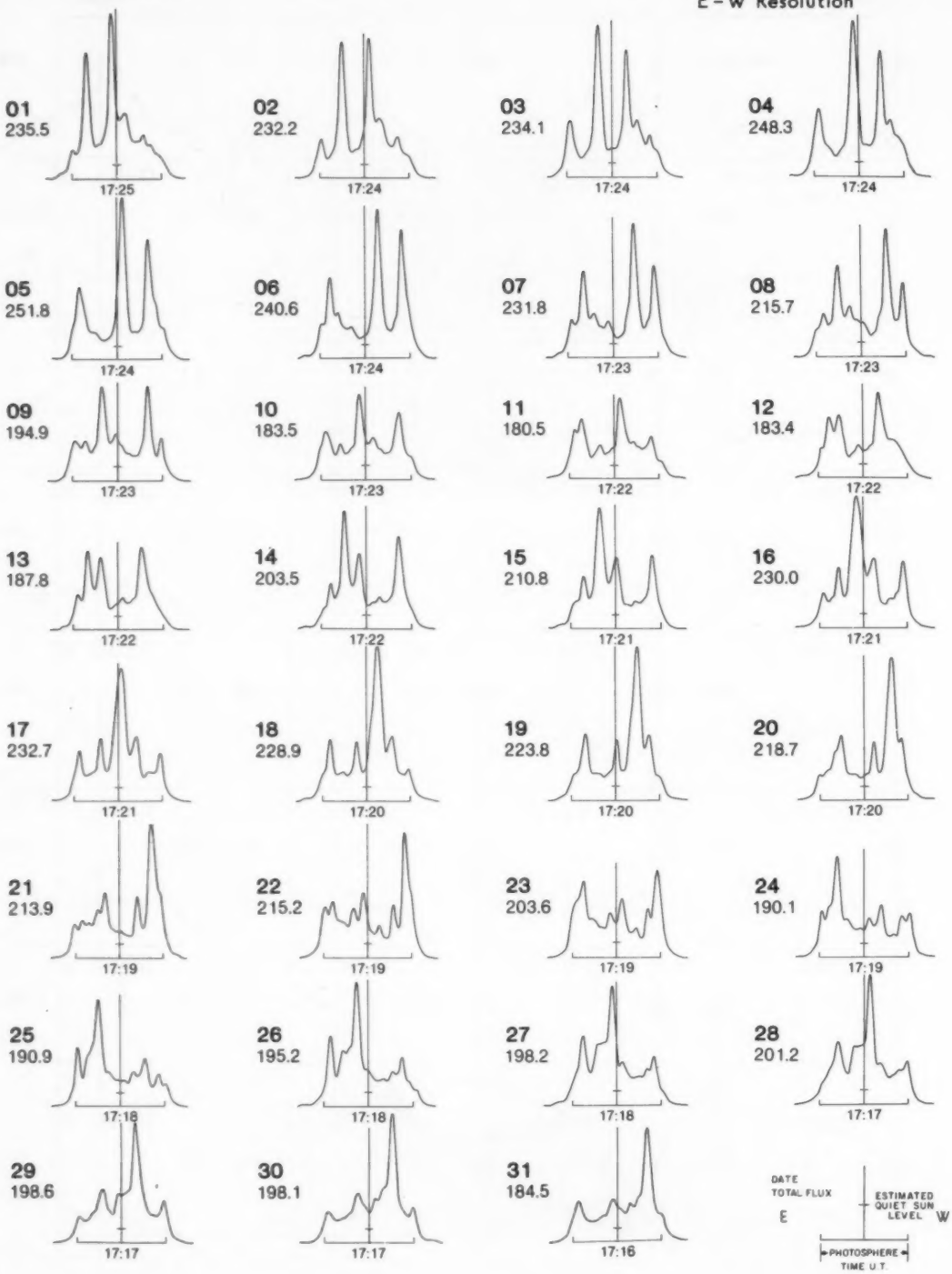
30
Mar 82

EAST-WEST SOLAR SCANS

MARCH 1982

ALGONQUIN RADIO OBSERVATORY
CANADA

10·7 cm
Fan Beam with 1·5 minutes of arc
E-W Resolution

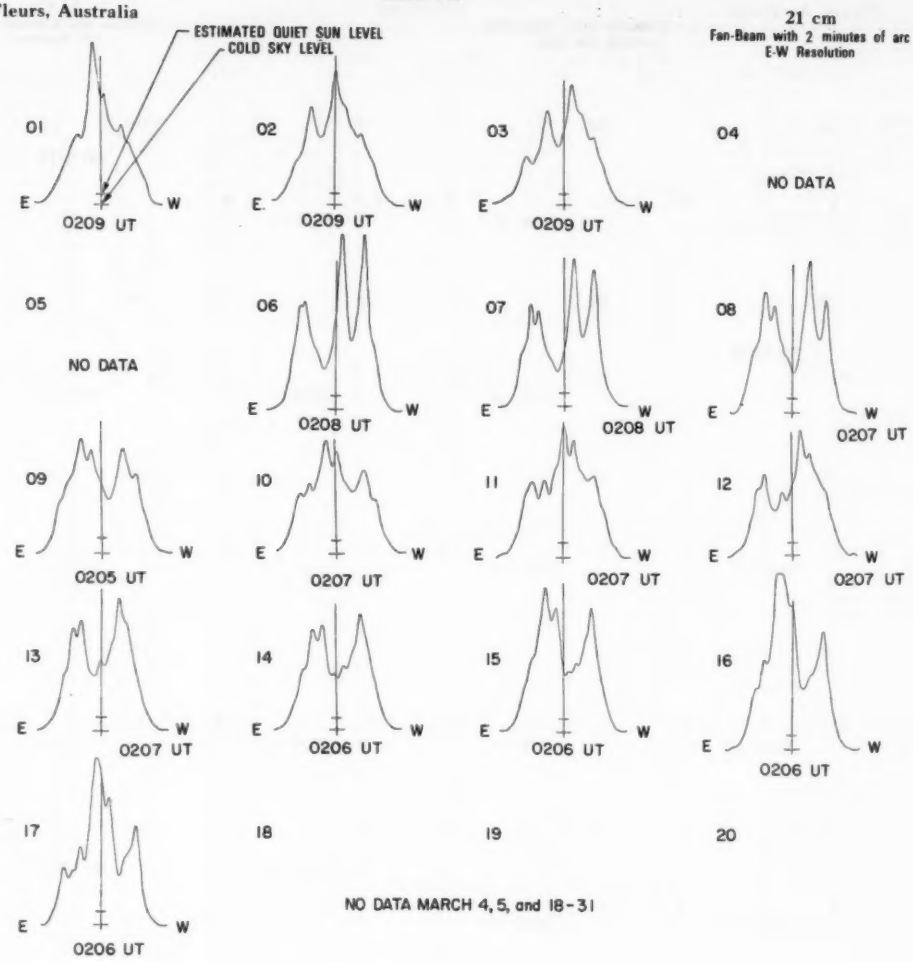


EAST-WEST SOLAR SCANS

MARCH 1982

Fleurs, Australia

21 cm
Fan-Beam with 2 minutes of arc
E-W Resolution

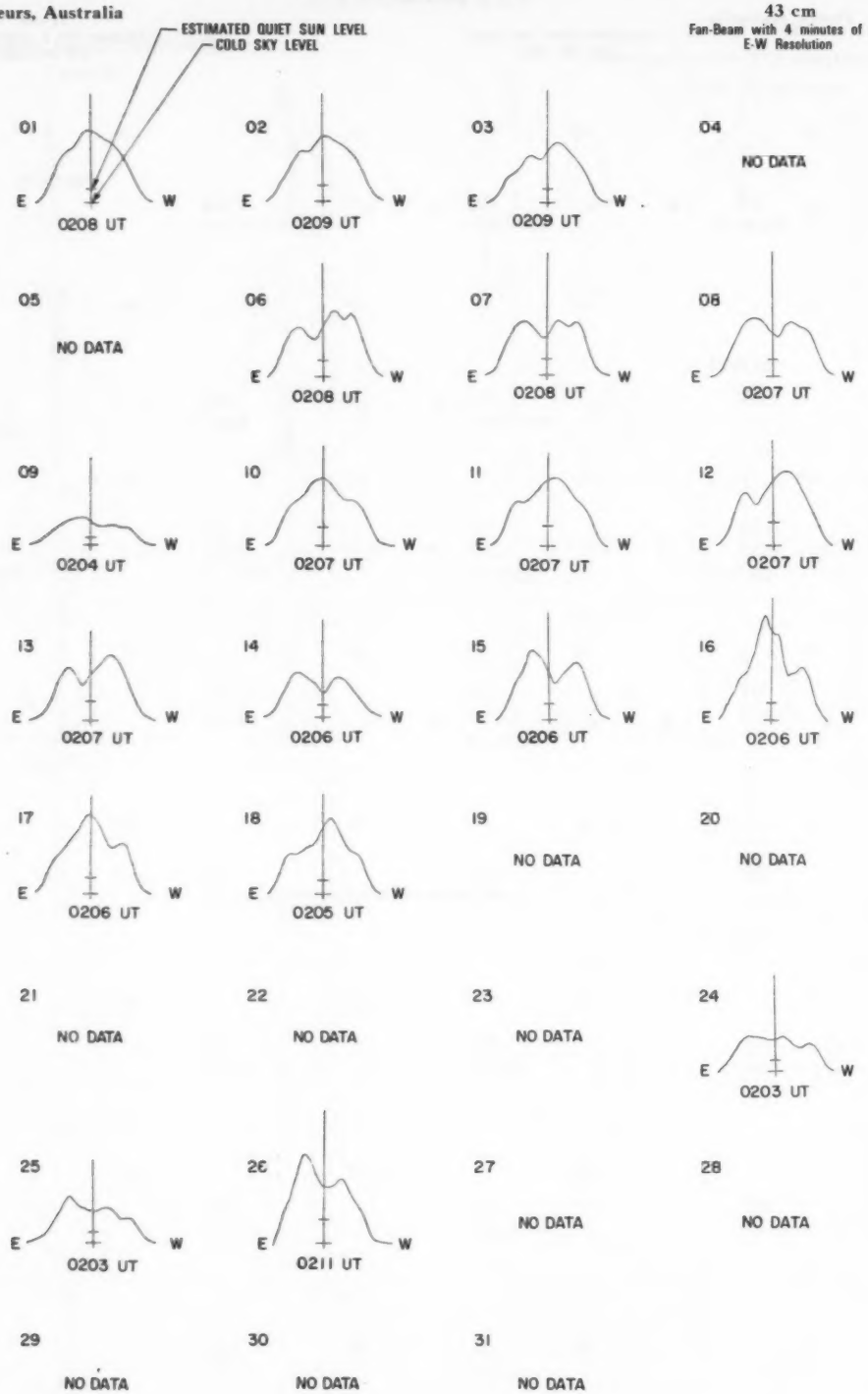


EAST-WEST SOLAR SCANS

MARCH 1982

Fleurs, Australia

43 cm
Fan-Beam with 4 minutes of arc
E-W Resolution



SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

MARCH 1982

Day of Month	Freq	Sta	Type		Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density (10 -22 W/m 2 Hz) Peak	Mean	Int	Remarks
01	2695	PENT	1	S	0007.2	0007.5	1.0	6.8			
	2695	PALE	47	GB	0238.5	0239.1	3.0	90.0			QL=6 ST=2 TYP=5
	8800	PALE	4	S/F	0238.5	0239.1	3.0	30.0			QL=6 ST=2 TYP=3
	2695	LEAR	47	GB	0238.6	0239.1	2.0	110.0			QL=6 ST=2 TYP=5
	8800	LEAR	8	S	0238.8	0239.1	1.0	48.0			QL=6 ST=2 TYP=3
	2695	MANI	3	S	0238.9	0239.5	3.1	105.3	35.1		
	8800	MANI	3	S	0239.0	0239.5	1.2	35.7	11.9		
	8800	LEAR	8	S	0536.6	0536.8	1.0	11.0			QL=6 ST=2 TYP=3
	2695	LEAR	8	S	0830.3	0830.3	1.0	11.0			QL=6 ST=2 TYP=3
	2695	LEAR	8	S	0923.6	0923.6	1.0	13.0			QL=6 ST=2 TYP=3
	2800	OTTA	20	GRF	1347.0	1351.0	100.0	4.8	2.4		
	2800	OTTA	240	AR	1549.0	1555.0	6.0	3.8	2.0		
	2800	OTTA	8	S	1552.9	1553.2	.8	3.8	2.4		
	2800	OTTA	3	S	1559.0	1602.0	6.0	16.6	7.6		
	2800	OTTA	29	PBI	1605.0	1605.0	15.0	7.0	3.4		
02	8800	LEAR	20	GRF	0805.0	0811.3	15.0	11.0			QL=6 ST=2 TYP=2
	8800	LEAR	20	GRF	0929.5	0930.1	7.0	17.0			QL=6 ST=2 TYP=2
	2800	OTTA	23	GRF	1240.0	1255.0	245.00	13.4			
	2800	OTTA	3A	S	1558.0	1605.0	13.0	14.0	7.0		
	2695	SGMR	4	S/F	1558.8	1600.3	4.0	33.0			QL=6 ST=3 TYP=3
	2800	OTTA	1	S	1559.0	1600.5	3.0	5.6	2.8		
	2800	OTTA	240	R	1710.0	1815.0	65.0	4.8	2.4		
	2800	OTTA	4	S/F	1845.0	1846.3	4.0	82.0	22.0		
	2695	SGMR	47	GB	1845.6	1846.1	2.0	74.0			QL=6 ST=2 TYP=5
	8800	SGMR	47	GB	1845.8	1845.8	1.0	61.0			QL=6 ST=2 TYP=5
	2800	OTTA	29	PBI	1849.0	1849.0	11.0	3.8	1.7		
	2800	OTTA	21	GRF	1905.0	2055.0	195.0	8.4	4.2		
	2800	OTTA	20	GRF	2129.0	2131.0	15.0	5.8	2.0		
03	2695	MANI	3	S	0256.7	0258.0	2.5	13.3	4.4		
	2695	LEAR	8	S	0257.5	0257.8	2.0	17.0			QL=6 ST=2 TYP=3
	8800	LEAR	8	S	0258.0	0258.5	1.0	13.0			QL=6 ST=2 TYP=3
	2800	OTTA	20	GRF	1255.0	1320.0	115.0	6.6	3.3		
	2800	OTTA	21	GRF	1505.0	1620.0	105.0	4.2	2.4		
	2800	OTTA	1	S	1639.5	1640.3	5.0	4.6	1.6		
	2800	OTTA	20	GRF	1705.0	1720.0	55.0	2.8	1.4		
04	2695	MANI	4	S/F	0055.5	0056.8	3.0	27.6	9.2		
	8800	LEAR	4	S/F	0055.8	0056.3	4.0	18.0			QL=6 ST=2 TYP=3
	2695	LEAR	4	S/F	0055.8	0056.8	3.0	15.0			QL=6 ST=2 TYP=3
	2695	MANI	22	GRF	0139.0	0147.4	18.0	25.4	8.5		
	8800	MANI	3	S	0146.0	0147.5	3.0	33.5	11.2		
	8800	LEAR	8	S	0146.1	0147.6	2.0	19.0			QL=6 ST=2 TYP=3
	2695	LEAR	8	S	0146.1	0147.6	2.0	18.0			QL=6 ST=2 TYP=3
	8800	PALE	8	S	0146.8	0147.1	1.0	22.0			QL=6 ST=2 TYP=3
	2695	PALE	4	S/F	0147.1	0147.3	30.0	16.0			QL=6 ST=2 TYP=3
	8800	LEAR	8	S	0920.8	0921.6	2.0	13.0			QL=6 ST=2 TYP=3
	2800	OTTA	22	GRF	1310.0	1350.0	90.0	6.2			
	2800	OTTA	21	GRF	1455.0	1610.0	220.0	10.4	5.2		
	2800	OTTA	1	S	1648.0	1649.0	6.0	4.6	2.3		
	2800	OTTA	240	R	2035.0	2055.0	20.0	4.2	2.6		
	8800	SGMR	8	S	2059.1	2059.5	1.0	20.0			QL=6 ST=3 TYP=3
	2800	OTTA	21	GRF	2105.0	2205.0	115.0	11.0	5.5		
	2800	OTTA	2	S/F	2114.2	2114.8	2.5	7.0	3.0		
	2800	OTTA	4	S/F	2214.0	2215.0	2.0	10.2	5.1		
	2695	PENT	29	PBI	2216.0	2216.0	25.0	6.2	3.1		
05	2695	MANI	4	S/F	0202.0	0204.5	7.0	50.4	16.8		
	8800	PALE	4	S/F	0202.3	0204.1	5.0	38.0			QL=6 ST=2 TYP=3
	2695	PALE	4	S/F	0202.3	0204.1	5.0	43.0			QL=6 ST=2 TYP=3
	8800	MANI	4	S/F	0202.5	0204.2	4.5	52.0	17.3		
	2695	LEAR	4	S/F	0202.6	0204.1	7.0	47.0			QL=6 ST=2 TYP=3
	8800	LEAR	4	S/F	0202.6	0204.1	5.0	29.0			QL=6 ST=2 TYP=3
	2695	MANI	4	S/F	0237.5	0244.4	12.0	73.1	24.4		
	8800	MANI	4	S/F	0238.0	0244.4	12.7	108.0	36.0		
	2695	PALE	47	GB	0242.8	0243.8	4.0	70.0			QL=6 ST=2 TYP=5
	8800	PALE	47	GB	0243.0	0243.8	28.0	80.0			QL=6 ST=2 TYP=5
	8400	BERN	3	S	0640.7	0641.8	3.5	46.0			
	2695	ATHN	8	S	0640.8	0641.8	2.0	27.0			QL=2 ST=2 TYP=3
	8800	LEAR	8	S	0641.0	0641.8	2.0	48.0			QL=6 ST=2 TYP=3
	2695	LEAR	8	S	0641.0	0641.8	1.0	32.0			QL=6 ST=2 TYP=3
	8800	ATHN	8	S	0641.1	0641.8	2.0	31.0			QL=2 ST=2 TYP=3
	2695	MANI	3	S	0642.0	0643.0	3.0	34.0	11.3		
	8800	MANI	3	S	0642.2	0643.2	2.0	80.0	26.7		
	2800	OTTA	21	GRF	1345.0		140.0	3.8			
	2800	OTTA	1	S	1447.0	1447.8	2.0	5.2	2.6		
	2800	OTTA	22	GRF	1610.0	1620.0	90.0	3.8			
	2800	OTTA	23	GRF	1745.0	1830.0	125.0	13.6	6.0		
	8800	PALE	47	GB	1941.5	1941.8	1.0	160.0			QL=6 ST=2 TYP=5
	2800	OTTA	1	S	1941.8	1942.0	1.0	2.8	1.4		
	2800	OTTA	21	GRF	2025.0	2145.0	175.0	7.2	3.6		
	8800	PALE	4	S/F	2053.1	2054.1	6.0	34.0			QL=6 ST=3 TYP=3
	2800	OTTA	4	S/F	2150.5	2153.0	9.0	20.0	7.0		
	2695	PALE	4	S/F	2151.3	2153.1	3.0	21.0			QL=6 ST=2 TYP=3

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

MARCH 1982

Day of Month	Freq	Sta	Type		Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density (10 -22 W/m 2 Hz) Peak	Mean	Int	Remarks
06	8800	MANI	3	S	0134.4	0135.0	1.3	65.9	22.0		
	8800	ATHN	47	GB	0642.3	0643.6	3.0	52.0			QL=5 ST=2 TYP=5
	8400	BERN	3	S	0642.3	0643.7	4.0	43.0			
	2695	MANI	3	S	0644.5	0645.8	3.0	10.5	3.5		
	8800	MANI	3	S	0645.0	0645.7	3.0	72.5	24.2		
	8400	BERN	4	S/F	0803.3	0803.8	3.0	168.0			
	8800	ATHN	47	GB	0803.6	0803.8	1.0	150.0	.		QL=5 ST=2 TYP=5
	2695	ATHN	47	GB	0803.6	0803.8	1.0	139.0			QL=5 ST=2 TYP=5
	8800	MANI	8	S	0805.5	0805.7	.9	125.6	41.9		
	2695	MANI	8	S	0805.5	0805.7	.8	136.5	45.5		
	2800	OTTA	23	GRF	1550.0	1750.0	495.0	11.4			
	2800	OTTA	1	S	1946.0	1947.5	4.0	2.8	1.4		
07	2695	MANI	47	GB	0246.4	0309.3	261.6	2080.0	760.0		
	8800	MANI	47	GB	0247.0	0308.5	249.0	5600.0	2334.0		
	8800	PALE	47	GB	0247.1	0247.8	2.0	91.0			QL=5 ST=2 TYP=5
	2695	PALE	8	S	0247.8	0247.8	1.0	16.0			QL=6 ST=2 TYP=3
	2695	PALE	4	S/F	0346.5	0346.8	3.0	31.0			QL=6 ST=2 TYP=3
	2695	PALE	47	GB	0412.3	0412.8	14.0	64.0			QL=6 ST=2 TYP=5
	2695	PALE	47	GB	0426.1	0426.8	5.0	370.0			QL=6 ST=2 TYP=5
	2695	ATHN	49	GB	0449.0E	0455.3	35.0D	1100.0			QL=4 ST=3 TYP=6
	8800	ATHN	49	GB	0449.0E	0455.3	33.0D	920.0			QL=4 ST=3 TYP=6
	2800	OTTA	21	GRF	1325.0	1425.0	100.0	5.2			
	8400	BERN	46	C	1351.8	1353.1	7.5	104.0			
	2695	ATHN	47	GB	1351.8	1353.3	3.0	100.0			QL=5 ST=2 TYP=5
	8800	ATHN	4	S/F	1351.8	1353.3	3.0	46.0			QL=5 ST=2 TYP=3
	2800	OTTA	3	S	1351.9	1353.2	5.0	93.0	23.0		
	2695	SGMR	47	GB	1352.1	1353.3	2.0	100.0			QL=6 ST=2 TYP=5
	8800	SGMR	47	GB	1352.3	1353.1	1.0	51.0			QL=6 ST=2 TYP=5
	2800	OTTA	20	GRF	1548.0	1551.0	12.0	3.2	1.6		
	2800	OTTA	1	S	1958.0	1959.0	2.0	6.6	3.3		
	2695	SGMR	8	S	1958.6	1959.1	1.0	41.0			QL=6 ST=2 TYP=3
	2695	PENT	2	S/F	2010.9	2012.0	3.0	6.6	2.2		
08	8800	PALE	8	S	0016.6	0016.8	1.0	18.0			QL=6 ST=2 TYP=3
	8800	LEAR	20	GRF	0511.5	0514.3	11.0	11.0			QL=6 ST=2 TYP=2
	2800	OTTA	21	GRF	1230.0	1420.0	320.0	16.6	8.6		
	8400	BERN	45	C	1303.5	1305.2	16.0	29.0			
	2800	OTTA	1	S	1304.0	1307.0	6.0	7.0	3.5		
	8800	SGMR	4	S/F	1304.6	1306.6	3.0	31.0			QL=6 ST=3 TYP=3
	2695	SGMR	4	S/F	1304.6	1306.6	5.0	18.0			QL=6 ST=2 TYP=3
	2800	OTTA	21	GRF	1820.0	2100.0	360.0	23.0	11.5		
	2800	OTTA	4	S/F	1941.0	1947.8	10.0	17.2	7.6		
	8800	PALE	47	GB	1943.3	1944.3	5.0	30.0			QL=6 ST=2 TYP=5
	2695	PALE	4	S/F	1943.3	1944.3	7.0	23.0			QL=6 ST=2 TYP=3
	2800	OTTA	45	C	2007.0	2013.0	25.0	138.0	29.0		
	2695	SGMR	47	GB	2011.3	2013.1	11.0	68.0			QL=6 ST=2 TYP=5
	8800	SGMR	47	GB	2011.5	2013.1	18.0	119.0			QL=6 ST=3 TYP=5
09	2800	OTTA	20	GRF	1400.0	1435.0	80.0	2.8	1.4		
	2800	OTTA	20	GRF	1710.0	1740.0	60.0	2.4	1.2		
	2800	OTTA	20	GRF	2110.0	2115.0	40.0	2.0	1.0		
	2695	PENT	1	S	2313.0	2314.0	2.5	6.2	3.1		
10	2695	LEAR	47	GB	0256.0	0259.3	21.0	110.0			QL=6 ST=3 TYP=5
	2695	MANI	46	C	0256.5	0300.0	19.0	120.0	40.0		
	8800	LEAR	47	GB	0256.8	0300.0	24.0	40.0			QL=6 ST=3 TYP=5
	2695	LEAR	47	GB	0258.3	0259.3	10.0	110.0			QL=6 ST=2 TYP=5
	8800	MANI	22	GRF	0258.5	0304.7	9.2	57.6	19.2		
	8800	PALE	4	S/F	0259.6	0259.8	6.0	27.0			QL=6 ST=2 TYP=3
	2695	PALE	8	S	0311.1	0311.1	1.0	27.0			QL=6 ST=2 TYP=3
	2800	OTTA	21	GRF	1655.0	1708.0	175.0	8.4	3.0		
	2800	OTTA	4	S/F	1844.5	1845.4	2.5	93.0	40.0		
	2695	PALE	47	GB	1844.8	1845.6	3.0	139.0			QL=6 ST=2 TYP=5
	2695	SGMR	47	GB	1845.0	1845.6	1.0	130.0			QL=6 ST=2 TYP=5
	8800	PALE	8	S	1845.1	1845.8	2.0	40.0			QL=6 ST=2 TYP=3
	8800	SGMR	4	S/F	1845.5	1845.6	180.0	30.0			QL=6 ST=2 TYP=3
	2800	OTTA	29	PBI	1847.0	1847.0	13.0	3.8	1.9		
11	2695	LEAR	8	S	0613.8	0614.1	1.0	38.0			QL=6 ST=2 TYP=3
	8800	ATHN	4	S/F	0635.6	0637.8	3.0	46.0			QL=2 ST=2 TYP=3
12	2800	OTTA	20	GRF	1810.0	1905.0	150.0	3.6	1.8		
13	2695	LEAR	8	S	0951.8	0951.8	1.0	31.0			QL=5 ST=2 TYP=3
	8800	LEAR	8	S	0951.8	0951.8	1.0	30.0			QL=5 ST=2 TYP=3
	2800	OTTA	240	AR	1252.0	1302.0	10.0	5.4			
	2800	OTTA	45	C	1252.5	1254.8	8.5	22.0	5.5		
	8800	SGMR	4	S/F	1252.6	1254.6	5.0	22.0			QL=6 ST=2 TYP=3
	2695	SGMR	8	S	1253.3	1254.6	2.0	27.0			QL=6 ST=2 TYP=3
14	8800	LEAR	8	S	0755.6	0755.8	1.0	11.0			QL=6 ST=2 TYP=3
	2695	LEAR	8	S	0755.6	0755.8	1.0	5.0			QL=6 ST=2 TYP=3
	2800	OTTA	20	GRF	1355.0	1440.0	135.0	3.6	2.2		
	2800	OTTA	27A	RF	1740.0		172.0	2.8	2.4		

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

MARCH 1982

Day of Month	Freq	Sta	Type		Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density (10 -22 W/m 2 Hz) Peak	Mean	Int	Remarks
14	2800	OTTA	24	R	1740.0	1800.0	20.0	2.8	1.4		
	2800	OTTA	24P	R	1800.0		120.0	2.8			
	2800	OTTA	1	S	1849.5	1850.0	4.0	2.4	1.2		
	2800	OTTA	26	FAL	2000.0	2032.0	32.0	2.8	1.4		
	2800	OTTA	21	GRF	2035.0	2130.0	260.0D	14.2			
	2800	OTTA	3	S	2115.0	2115.2	1.5	14.8	5.0		
	2695	PALE	4	S/F	2115.0	2115.1	30.0	23.0			QL=6 ST=2 TYP=3
	8800	PALE	4	S/F	2115.0	2115.1	20.0	36.0			QL=6 ST=2 TYP=3
15	8800	LEAR	4	S/F	0649.1	0650.6	3.0	11.0			QL=6 ST=2 TYP=3
	2800	OTTA	22	GRF	1325.0	1525.0	155.0	9.0			
	2800	OTTA	20	GRF	1635.0	1710.0	85.0	3.6			
	2800	OTTA	240	R	1940.0	2230.0	170.0	11.6	4.0		
	2695	PENT	21	GRF	2320.0	2400.0	110.0D	38.0			
	2695	PENT	40	F	2337.0	2340.3	10.0	27.0			
	8800	MANI	4	S/F	2339.4	2342.0	2.6D	42.1	14.0		
	2695	PALE	4	S/F	2339.5	2340.3	13.0	44.0			QL=6 ST=2 TYP=3
	2695	LEAR	4	S/F	2339.8	2340.3	17.0	42.0			QL=6 ST=2 TYP=3
	8800	LEAR	4	S/F	2339.8	2340.5	17.0	30.0			QL=6 ST=2 TYP=3
	8800	PALE	4	S/F	2340.3	2341.8	12.0	28.0			QL=6 ST=3 TYP=3
	8800	PALE	47	GB	2352.3	2353.8	11.0	74.0			QL=6 ST=2 TYP=5
	2695	PALE	20	GRF	2352.3	2354.3	11.0	37.0			QL=6 ST=2 TYP=2
16	8800	LEAR	4	S/F	0156.1	0156.6	3.0	28.0			QL=6 ST=2 TYP=3
	2800	OTTA	20	GRF	1235.0	1250.0	40.0	4.0	2.2		
17	8800	LEAR	4	S/F	0153.3	0155.6	3.0	11.0			QL=6 ST=2 TYP=3
	2695	MANI	3	S	0221.2	0221.5	.6	35.1	11.7		
	8800	LEAR	4	S/F	0241.3	0241.3	4.0	20.0			QL=6 ST=2 TYP=3
	2695	LEAR	8	S	0241.3	0241.5	2.0	29.0			QL=6 ST=2 TYP=3
	8800	ATHN	4	S/F	1106.6	1108.5	9.0	11.0			QL=6 ST=2 TYP=3
	2695	ATHN	4	S/F	1107.6	1108.5	5.0	32.0			QL=6 ST=2 TYP=3
	2695	ATHN	4	S/F	1112.8	1117.3	13.0	37.0			QL=6 ST=2 TYP=3
	2800	OTTA	21	GRF	1235.0	1450.0	235.0	11.4	5.6		
	2800	OTTA	2	S/F	1239.5	1241.5	6.5	9.0	4.4		
	2800	OTTA	1	S	1306.5	1306.7	1.0	4.6	2.2		
	2800	OTTA	1	S	1335.0	1335.8	2.0	3.2	1.6		
	8800	ATHN	4	S/F	1423.5	1423.8	4.0	27.0			QL=6 ST=2 TYP=3
	2695	ATHN	4	S/F	1423.5	1423.8	4.0	42.0			QL=6 ST=2 TYP=3
	8400	BERN	3	S	1424.0U	1425.0U	3.0U	26.0			ONLY PAPER REC
	2800	OTTA	3	S	1424.5	1425.0	3.0	34.0	9.0		
	8800	SGMR	8	S	1424.6	1424.8	1.0	42.0			QL=6 ST=2 TYP=3
	2695	SGMR	47	GB	1424.6	1425.0	1.0	58.0			QL=6 ST=2 TYP=5
	2800	OTTA	1	S	1656.5	1657.0	1.5	2.8	1.4		
	2800	OTTA	20	GRF	1940.0	1955.0	40.0	2.6	1.3		
	2800	OTTA	23	GRF	2110.0	2145.0	110.0	6.8	3.4		
	2800	OTTA	8	S	2202.9	2203.0	.5	9.6			
18	2695	LEAR	47	GB	0409.8	0410.8	3.0	110.0			QL=6 ST=3 TYP=5
	8800	LEAR	4	S/F	0409.8	0411.0	3.0	33.0			QL=6 ST=3 TYP=3
	2695	MANI	3	S	0410.7	0410.9	1.2	97.9	32.7		
	8800	MANI	3	S	0410.7	0411.2	1.5	29.3	9.8		
	2695	ATHN	4	S/F	0815.0	0817.0	5.0	16.0			QL=6 ST=2 TYP=3
	8800	ATHN	4	S/F	0815.8	0817.1	5.0	11.0			QL=6 ST=2 TYP=3
	2695	LEAR	4	S/F	0817.1	0817.3	20.0	7.0			QL=6 ST=2 TYP=3
	2800	OTTA	1	S	1208.0	1208.5	1.0	9.0	4.0		
	2800	OTTA	4	S/F	1231.0	1231.7	3.0	18.2	9.0		
	2695	SGMR	8	S	1231.1	1231.6	1.0	26.0			QL=6 ST=2 TYP=3
	2800	OTTA	29	PBI	1234.0	1234.0	8.0	4.6	2.6		
	8800	ATHN	8	S	1236.3	1237.1	2.0	13.0			QL=6 ST=2 TYP=3
	2695	ATHN	8	S	1236.3	1237.1	2.0	22.0			QL=6 ST=2 TYP=3
	2800	OTTA	20	GRF	1330.0	1336.0	18.0	4.6	2.3		
	2800	OTTA	21	GRF	1353.0		50.0	8.0			
	8800	ATHN	4	S/F	1353.6	1355.6	7.0	31.0			QL=6 ST=2 TYP=3
	2800	OTTA	2	S/F	1353.7	1357.2	3.5D	9.0	5.0		
	2695	SGMR	8	S	1353.8	1355.3	2.0	19.0			QL=6 ST=2 TYP=3
	8800	SGMR	4	S/F	1353.8	1355.6	3.0	47.0			QL=6 ST=2 TYP=3
	2800	OTTA	20	GRF	1555.0	1615.0	45.0	3.8	1.9		
	2800	OTTA			1755.0		115.0	3.8			
	2800	OTTA	1	S	2040.8	2041.0	1.2	10.0	5.0		
	2800	OTTA	29	PBI	2042.0	2042.0	30.0	3.6	2.8		
	2800	OTTA	21	GRF	2118.0		120.0	17.8	9.0		
	8800	PALE	47	GB	2135.6	2137.8	8.0	169.0			QL=6 ST=2 TYP=5
	2800	OTTA	4	S/F	2136.0	2138.0	9.0	150.0	40.0		
	8800	SGMR	47	GB	2136.3	2137.8	5.0	139.0			QL=6 ST=2 TYP=5
	2695	SGMR	47	GB	2136.5	2138.0	6.0	139.0			QL=6 ST=2 TYP=5
	2695	PALE	47	GB	2136.6	2138.0	6.0	169.0			QL=6 ST=2 TYP=5
	2695	PENT	21	GRF	2340.0	2400.0	80.0D	3.8			
	2695	PENT	1	S	2341.5	2342.1	1.0	4.0	2.0		
19	2695	LEAR	4	S/F	0418.6	0420.8	4.0	11.0			QL=6 ST=2 TYP=3
	8800	LEAR	20	GRF	0435.0	0439.3	8.0	24.0			QL=6 ST=2 TYP=2
	2695	LEAR	20	GRF	0435.8	0439.3	8.0	10.0			QL=6 ST=2 TYP=2
	8800	LEAR	4	S/F	0458.1	0459.1	9.0	80.0			QL=6 ST=2 TYP=3
	2695	LEAR	4	S/F	0458.1	0459.1	3.0	30.0			QL=6 ST=2 TYP=3

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

MARCH 1982

Day of Month	Freq	Sta	Type		Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density (10 -22 W/m 2 Hz) Peak	Mean	Int	Remarks
19	8800	MANI	3	S	0458.5	0459.6	1.9	96.3	32.1		
	2695	MANI	3	S	0458.6	0459.6	1.9	84.9	28.3		
	8800	MANI	3	S	0708.0	0708.8	1.5	86.7	28.9		
	8800	LEAR	47	GB	0708.1	0708.3	1.0	60.0			QL=6 ST=2 TYP=5
	8800	ATHN	8	S	0708.1	0708.3	1.0	42.0			QL=5 ST=2 TYP=3
	2800	OTTA	22	GRF	1255.0	1335.0	105.0	12.2			
	2800	OTTA	21	GRF	1510.0	1555.0	210.0	18.0	5.0		
	2695	ATHN	20	GRF	1531.6	1534.8	13.0	53.0			QL=6 ST=2 TYP=2
	2800	OTTA	4	S/F	1532.0	1534.7	10.0	78.0	26.0		
	8400	BERN	4	S/F	1532.0U	1537.0U	11.0U	29.0			ONLY PAPER REC
	8800	ATHN	20	GRF	1532.5	1537.1	8.0	35.0			QL=6 ST=2 TYP=2
	2695	SGMR	47	GB	1532.8	1534.8	12.0	93.0			QL=6 ST=2 TYP=5
	8800	SGMR	4	S/F	1534.3	1535.3	5.0	38.0			QL=6 ST=2 TYP=3
	2800	OTTA	20	GRF	1705.0	1710.0	15.0	5.6	2.8		
	2695	PENT	8	S	2002.3	2002.6	.8	4.2	2.1		
	8800	SGMR	8	S	2003.6	2004.3	2.0	35.0			QL=6 ST=2 TYP=3
	8800	PALE	4	S/F	2004.0	2004.3	80.0	44.0			QL=6 ST=2 TYP=3
	2800	OTTA	20	GRF	2055.0	2100.0	50.0	3.8			
	8800	PALE	8	S	2057.3	2058.6	2.0	21.0			QL=6 ST=2 TYP=3
	2695	PALE	4	S/F	2106.3	2106.6	7.0	23.0			QL=6 ST=2 TYP=3
	2695	PENT	27	RF	2200.0		110.0	3.0	2.8		
	2695	PENT	24	R	2200.0	2205.0	5.0	3.0	1.5		
	2695	PENT	24P	R	2205.0		95.0	3.0			
	2695	PENT	26	FAL	2340.0	2350.0	10.0	3.0	1.5		
20	2800	OTTA	20	GRF	1815.0	1855.0	120.0	4.4	2.2		
21	8800	LEAR	4	S/F	0102.8	0103.8	3.0D	20.0			QL=6 ST=2 TYP=3
	8800	PALE	4	S/F	0103.6	0103.8	20.0	21.0			QL=6 ST=2 TYP=3
	8400	BERN	3	S	0744.0U	0745.0U	5.0U	40.0			ONLY PAPER REC
	8800	LEAR	47	GB	0744.8	0745.1	1.0	51.0			QL=6 ST=2 TYP=5
	8800	ATHN	4	S/F	0745.0	0745.1	80.0	16.0			QL=5 ST=2 TYP=3
	8800	ATHN	8	S	1114.3	1115.1	2.0	13.0			QL=6 ST=2 TYP=3
	8800	ATHN	8	S	1124.0	1125.1	2.0	13.0			QL=6 ST=2 TYP=3
	2695	SGMR	4	S/F	1452.8	1453.1	3.0	13.0			QL=6 ST=2 TYP=3
	2800	OTTA	1	S	1453.0	1453.1	1.5	4.4	2.2		
	8800	SGMR	8	S	1453.0	1453.1	1.0	17.0			QL=6 ST=2 TYP=3
	2800	OTTA	8	S	1539.0	1539.1	.2	2.2	1.1		
	2800	OTTA	4	S/F	1754.2	1756.0	6.0	120.0	20.0		
	2695	SGMR	47	GB	1755.3	1756.1	1.0	99.0			QL=6 ST=2 TYP=5
	2695	PALE	47	GB	1755.3	1756.1	1.0	99.0			QL=6 ST=2 TYP=5
	8800	SGMR	47	GB	1755.6	1756.1	3.0	100.0			QL=6 ST=2 TYP=5
	8800	PALE	47	GB	1755.8	1756.1	2.0	110.0			QL=6 ST=2 TYP=5
	2800	OTTA	3	S	1815.9	1816.1	1.0	15.0	7.5		
	2800	OTTA	1	S	1859.0	1900.0	1.5	3.0	1.5		
	2800	OTTA	21	GRF	1859.0	1920.0	60.0	4.0	1.8		
	8800	PALE	47	GB	1859.3	1859.8	2.0	64.0			QL=6 ST=2 TYP=5
	8800	SGMR	8	S	1859.5	1859.8	1.0	48.0			QL=6 ST=2 TYP=3
22	2695	LEAR	47	GB	0555.5	0557.1	9.0	100.0			QL=6 ST=2 TYP=5
	2695	ATHN	47	GB	0555.5	0600.3	8.0	160.0			QL=5 ST=2 TYP=5
	8800	ATHN	47	GB	0555.5	0600.5	8.0	139.0			QL=5 ST=2 TYP=5
	2695	MANI	45	C	0556.0	0600.8	6.8	136.8	45.6		
	8800	LEAR	47	GB	0556.1	0557.1	8.0	26.0			QL=6 ST=2 TYP=5
	8800	MANI	45	C	0556.5	0600.9	7.5	232.1	77.4		
	2800	OTTA	20	GRF	1400.0	1417.0	85.0D	6.4			
	2695	SGMR	4	S/F	1416.6	1416.8	10.0	17.0			QL=6 ST=2 TYP=3
	2800	OTTA	21	GRF	1620.0	1630.0	30.0	3.6	2.0		
	2695	SGMR	4	S/F	1624.6	1626.1	100.0	19.0			QL=6 ST=2 TYP=3
	2800	OTTA	8	S	1626.1	1626.1	.1	6.8			
	2800	OTTA	2	S/F	1654.2	1655.0	2.0	6.8	3.4		
	2800	OTTA	21	GRF	1820.0	1824.0	50.0	3.4			
	2800	OTTA	3	S	1834.0	1834.8	3.0	27.4	9.0		
	2695	SGMR	8	S	1834.8	1835.1	1.0	36.0			QL=6 ST=2 TYP=3
	2695	PALE	4	S/F	1835.0	1835.1	10.0	30.0			QL=6 ST=3 TYP=3
	8800	SGMR	4	S/F	1835.1	1835.1	10.0	17.0			QL=6 ST=2 TYP=3
	2800	OTTA	1	S	1857.0	1858.0	2.0	2.6	1.3		
	2800	OTTA	20	GRF	2010.0	2025.0	35.0	3.2	1.8		
23	8800	LEAR	47	GB	0516.8	0519.6	12.0	83.0			QL=6 ST=2 TYP=5
	2695	LEAR	4	S/F	0517.3	0519.0	11.0	29.0			QL=6 ST=2 TYP=3
	2695	MANI	22	GRF	0517.7	0520.2	11.3	35.8	11.9		
	8800	MANI	22	GRF	0518.0	0520.2	9.0	76.8	25.6		
	8400	BERN	45	C	0851.8	0856.0	20.0	37.0			
	8800	LEAR	4	S/F	0855.1	0856.0	4.0	30.0			QL=6 ST=2 TYP=3
	8400	BERN	4	S/F	1406.3	1407.4	4.0	35.0			
	8800	SGMR	8	S	1407.1	1407.5	1.0	41.0			QL=6 ST=2 TYP=3
	2800	OTTA	1	S	1542.0	1542.1	1.2	3.6	1.8		
	2800	OTTA	4	S/F	1846.8	1848.0	5.0	13.2	3.8		
	2695	PENT	8	S	2356.0	2356.4	.6	8.6			
24	2695	MANI	3	S	0033.8	0035.3	2.7	42.6	14.2		
	2695	PENT	3	S	0034.0	0035.1	2.0	15.0	7.2		
	8400	BERN	3	S	1249.3	1249.7	3.0	30.0			
	2800	OTTA	21	GRF	1340.0		80.0	4.0			

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

MARCH 1982

Day of Month	Freq	Sta	Type		Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density (10 -22 W/m 2 Hz) Peak	Mean	Int	Remarks
24	8400	BERN	46	C	1357.7	1358.2	12.5	50.0			
	2800	OTTA			1401.0		1.0D	4.8			
	8400	BERN	4	S/F	1513.4	1514.0	3.0	24.0			
	2800	OTTA	20	GRF	1600.0	1605.0	40.0	2.0	1.0		
	8400	BERN	22	GRF	1623.0	1625.2	20.0	38.0			
	2800	OTTA	20	GRF	1700.0	1707.0	20.0	3.2	1.6		
	2800	OTTA	20	GRF	2000.0	2017.0	55.0	4.2	2.0		
	2800	OTTA	21	GRF	2140.0	2201.0	90.0	8.6	4.3		
	2800	OTTA	1	S	2144.5	2145.0	1.0	2.0			
	2800	OTTA	4	S/F	2146.8	2147.4	3.0	21.0	9.8		
25	2695	PENT	3	S	0032.0	0032.8	3.0	11.0	2.8		
	8400	BERN	4	S/F	0638.5	0640.2	5.0	27.0			
	2800	OTTA	4	S/F	1225.0	1225.3	3.0	83.0	20.0		
	8400	BERN	22	GRF	1412.6	1422.7	20.0U	38.0			
	2800	OTTA	4	S/F	1625.0	1628.0	5.0	127.0	42.0		
	8400	BERN	45	C	1625.0	1628.4	19.0U	124.0			
	2800	OTTA	30	PBI	1630.0	1630.0	20.0	10.2	3.4		
	2800	OTTA	3	S	1632.3	1633.0	4.0	42.0	21.0		
	2695	PENT	46F	C	2309.0	2318.5	18.0	48.0	11.8		
26	8800	MANI	3	S	0335.0	0335.8	5.0	114.0	38.0		
	2695	MANI	3	S	0422.4	0422.5	.6	15.2	5.1		
	8800	MANI	3	S	0422.4	0423.0	2.0	42.8	14.3		
	2695	MANI	4	S/F	0547.0	0549.5	3.5	60.8	20.3		
	8800	MANI	4	S/F	0547.0	0549.8	7.4	390.5	130.2		
	8400	BERN	45	C	0547.4	0549.1	6.0U	367.0			
	2800	OTTA	4	S/F	1456.8	1457.1	10.0	36.0	6.4		
	2800	OTTA	1	S	1629.7	1630.2	1.5	2.0	1.0		
	2800	OTTA	20	GRF	1640.0	1720.0	80.0	3.2			
	2800	OTTA	1	S	1915.0	1915.2	1.0	2.8	1.2		
	2800	OTTA	21	GRF	1940.0		70.0	2.4			
	2800	OTTA	1	S	1948.5	1949.5	2.0	2.4	1.4		
	2800	OTTA	21	GRF	2120.0	2145.0	35.0	4.0	2.0		
	2800	OTTA	3	S	2137.5	2138.0	2.0	14.8	5.0		
	2800	OTTA	22	GRF	2225.0	2226.0	11.0	5.0			
27	2695	PENT	1	S	0031.0	0031.5	1.0	7.2	3.6		
	8800	MANI	4	S/F	0211.0	0215.3	7.5	135.6	45.2		
	2695	MANI	4	S/F	0211.5	0214.3	7.5	81.8	27.3		
	2695	LEAR	8	S	0302.1	0302.6	1.0	6.0			QL=6 ST=2 TYP=3
	8800	ATHN	4	S/F	0912.5	0914.6	6.0	25.0			QL=6 ST=2 TYP=3
	2695	ATHN	4	S/F	0912.6	0914.6	6.0	27.0			QL=6 ST=2 TYP=3
	8400	BERN	3	S	0912.7	0914.2	7.0	32.0			
	2695	LEAR	4	S/F	0913.1	0914.3	3.0	22.0			QL=6 ST=2 TYP=3
	8800	LEAR	4	S/F	0913.3	0914.5	3.0	31.0			QL=6 ST=2 TYP=3
	2695	ATHN	47	GB	1009.3	1011.0	9.0	56.0			QL=6 ST=2 TYP=5
	8800	ATHN	4	S/F	1009.3	1011.5	17.0	13.0			QL=6 ST=2 TYP=3
	2800	OTTA	20	GRF	1225.0	1250.0	80.0	4.0	2.0		
	2800	OTTA			1402.0	1417.7	15.7D	112.0			
	8400	BERN	45	C	1406.8	1415.8	120.0D	483.0			
	2695	SGMR	47	GB	1408.6	1411.6	34.0	200.0			QL=6 ST=2 TYP=5
	8800	SGMR	47	GB	1409.5	1411.6	44.0	280.0			QL=6 ST=2 TYP=5
	2800	OTTA	29	PBI	1430.0	1430.0	180.0	15.4	5.2		
	2800	OTTA	1	S	2020.5	2023.0	4.5	3.0	1.5		
28	8800	LEAR	8	S	0142.1	0142.6	2.0	10.0			QL=6 ST=2 TYP=3
	8800	LEAR	47	GB	0148.0	0150.8	8.0	100.0			QL=6 ST=2 TYP=5
	2695	LEAR	4	S/F	0148.1	0150.6	5.0	40.0			QL=6 ST=2 TYP=3
	2695	MANI	3	S	0150.0	0151.0	3.0	71.1	23.7		
	2695	PALE	8	S	0150.1	0150.6	1.0	39.0			QL=6 ST=2 TYP=3
	8800	PALE	47	GB	0150.1	0150.8	2.0	96.0			QL=6 ST=2 TYP=5
	8800	MANI	3	S	0150.3	0151.4	3.3	83.5	27.8		
	2695	LEAR	8	S	0305.3	0306.3	2.0	34.0			QL=6 ST=2 TYP=3
	2695	MANI	3	S	0306.0	0306.7	1.4	44.9	15.0		
	8800	LEAR	8	S	0306.1	0306.6	2.0	40.0			QL=6 ST=2 TYP=3
	2695	PALE	4	S/F	0306.3	0306.6	10.0	32.0			QL=6 ST=2 TYP=3
	8800	MANI	3	S	0306.3	0306.7	1.0	48.2	16.1		
	8800	LEAR	8	S	0309.1	0309.1	1.0	34.0			QL=6 ST=2 TYP=3
	8800	LEAR	47	GB	0431.8	0433.8	17.0	219.0			QL=6 ST=3 TYP=5
	8800	MANI	3	S	0432.0	0434.1	4.0	171.6	57.2		
	2695	LEAR	4	S/F	0432.1	0433.6	15.0	48.0			QL=6 ST=2 TYP=3
	2695	MANI	3	S	0432.2	0433.9	3.8	32.9	11.0		
	2695	ATHN	4	S/F	0437.0E	0437.6	5.0D	8.0			QL=2 ST=2 TYP=3
	8800	ATHN	47	GB	0437.3E	0437.8	5.0D	100.0			QL=2 ST=2 TYP=5
	8800	LEAR	20	GRF	0627.6	0631.6	11.0	24.0			QL=6 ST=2 TYP=2
	2695	LEAR	20	GRF	0628.0	0634.1	9.0	13.0			QL=6 ST=2 TYP=2
	2695	ATHN	8	S	0630.0	0630.3	1.0	11.0			QL=6 ST=2 TYP=3
	8800	LEAR	4	S/F	0700.1	0700.3	110.0	22.0			QL=6 ST=2 TYP=3
	2695	LEAR	4	S/F	0700.1	0700.5	90.0	16.0			QL=6 ST=2 TYP=3
	8400	BERN	47	GB	1004.0	1004.9	9.5	770.0			
	8800	LEAR	49	GB	1004.5	1004.8	4.0	710.0			QL=5 ST=3 TYP=6
	2695	LEAR	47	GB	1004.5	1005.3	1.0	160.0			QL=5 ST=3 TYP=5
	8800	ATHN	49	GB	1004.6	1005.3	11.0	1000.0			QL=6 ST=2 TYP=6
	2695	ATHN	47	GB	1004.6	1005.3	11.0	139.0			QL=6 ST=2 TYP=5

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

MARCH 1982

Day of Month	Freq	Sta	Type		Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density (10 -22 W/m 2 Hz) Peak	Mean	Int	Remarks
28	2800	OTTA	2	S/F	1306.0	1307.0	3.0	4.8	2.2		
	2800	OTTA	21	GRF	1315.0	1340.0	165.0	10.2	5.1		
	2800	OTTA	2	S/F	1316.5	1317.5	10.0	6.4	3.0		
	2695	SGMR	8	S	1317.1	1319.1	2.0	18.0			QL=6 ST=2 TYP=3
	8800	SGMR	8	S	1338.8	1339.1	1.0	17.0			QL=6 ST=2 TYP=3
	2800	OTTA	1	S	1452.0	1452.6	1.3	4.0	2.0		
	2800	OTTA	21	GRF	1945.0	2035.0	95.0	4.8			
	2800	OTTA	1	S	2000.8	2001.0	1.0	2.4			
	2800	OTTA	3	S	2022.7	2023.1	1.5	16.0	4.0		
	2800	OTTA	1	S	2106.0	2106.7	1.5	2.4	1.2		
	2695	LEAR	4	S/F	2353.3	2355.0	6.0	10.0			QL=6 ST=2 TYP=3
	8800	LEAR	4	S/F	2353.8	2357.8	6.0	24.0			QL=6 ST=2 TYP=3
	8800	PALE	8	S	2357.6	2358.3	2.0	19.0			QL=6 ST=2 TYP=3
29	2695	MANI	3	S	0141.0	0141.3	.5	59.4	19.8		
	8800	MANI	3	S	0141.0	0141.3	2.0	206.4	68.8		
	2695	MANI	3	S	0805.6	0806.0	1.6	13.8	4.6		
	8800	MANI	3	S	0805.6	0806.2	1.2	40.6	13.5		
	8400	BERN	45	C	0906.0U	0907.0U	17.0U	109.0			ONLY PAPER REC
	8800	MANI	4	S/F	0906.5	0907.8	1.5	115.4	38.5		
	2695	LEAR	8	S	0930.8	0930.8	1.0	18.0			QL=6 ST=3 TYP=3
	8800	LEAR	8	S	0930.8	0931.0	1.0	10.0			QL=6 ST=3 TYP=3
	2800	OTTA	27A	RF	1250.0		270.0	4.0	3.6		
	2800	OTTA	24	R	1250.0	1310.0	20.0	4.0	2.0		
	2800	OTTA	24P	R	1310.0		210.0	4.0			
	2800	OTTA	20	GRF	1530.0	1535.0	30.0	2.8	1.8		
	2800	OTTA	26	FAL	1640.0	1720.0	40.0	4.0	2.0		
	2800	OTTA	2	S/F	1653.0	1656.5	6.0	4.8			
	2800	OTTA	22	GRF	1720.0	1836.0	115.0	6.2	2.8		
	2800	OTTA	21	GRF	1940.0	2022.0	170.0	10.2	5.4		
	2695	PENT	1	S	2012.0	2012.3	3.0	2.0	1.5		
	2800	OTTA	1	S	2110.8	2111.2	4.0	4.8	2.4		
	8800	SGMR	4	S/F	2111.1	2111.1	10.0	18.0			QL=6 ST=2 TYP=3
	8800	PALE	4	S/F	2300.3	2300.6	20.0	23.0			QL=6 ST=2 TYP=3
30	8800	LEAR	47	GB	0231.8	0233.8	12.0	10.0			QL=6 ST=3 TYP=5
	8800	PALE	47	GB	0232.8	0234.1	8.0	37.0			QL=6 ST=2 TYP=5
	8800	MANI	3	S	0237.0	0239.3	3.0	95.7	31.9		
	2695	LEAR	4	S/F	0237.6	0238.8	4.0	30.0			QL=6 ST=3 TYP=3
	2695	MANI	3	S	0237.7	0239.0	2.3	29.8	9.9		
	2695	PALE	8	S	0238.1	0238.6	1.0	34.0			QL=6 ST=2 TYP=3
	8800	MANI	47	GB	0519.0	0537.2	112.0	1650.0	604.0		
	8800	LEAR	49	GB	0522.0	0522.6	16.0	80.0			QL=6 ST=2 TYP=7
	2695	MANI	47	GB	0522.0	0600.5	115.0	3900.0	1630.0		
	8800	ATHN	49	GB	0522.3	0523.3	101.0	100.0			QL=6 ST=2 TYP=6
	2695	ATHN	49	GB	0523.5	0534.0	100.0	230.0			QL=6 ST=2 TYP=6
	2695	LEAR	49	GB	0527.6	0530.8	11.0	74.0			QL=6 ST=2 TYP=7
	8800	LEAR	49	GB	0538.3	0540.8	12.0	2000.0			QL=6 ST=2 TYP=7
	2695	LEAR	49	GB	0538.3	0540.8	12.0	860.0			QL=6 ST=2 TYP=7
	8800	LEAR	47	GB	0555.0	0555.1	11.0	130.0			QL=6 ST=2 TYP=5
	2695	LEAR	49	GB	0555.0	0555.6	11.0	880.0			QL=6 ST=2 TYP=6
	8800	LEAR	47	GB	0609.1	0609.6	12.0	90.0			QL=6 ST=2 TYP=5
	2695	LEAR	47	GB	0609.1	0610.3	12.0	169.0			QL=6 ST=2 TYP=5
	8800	LEAR	4	S/F	0623.8	0624.3	13.0	46.0			QL=6 ST=2 TYP=3
	2695	LEAR	47	GB	0623.8	0625.8	13.0	139.0			QL=6 ST=2 TYP=5
	2695	LEAR	47	GB	0636.6	0637.8	10.0	71.0			QL=6 ST=2 TYP=5
	8800	LEAR	4	S/F	0637.8	0637.8	10.0	16.0			QL=6 ST=2 TYP=3
	8400	BERN	4	S/F	0704.8	0706.2	5.0	113.0			
	8800	ATHN	47	GB	0705.0	0706.6	31.0	130.0			QL=6 ST=2 TYP=5
	8800	SGMR	8	S	1143.1	1144.0	1.0	45.0			QL=6 ST=2 TYP=3
	2695	SGMR	8	S	1143.1	1144.0	1.0	15.0			QL=6 ST=2 TYP=3
	2800	OTTA	4	S/F	1143.5	1144.0	1.5	29.0	14.0		
	2695	ATHN	8	S	1143.8	1144.6	2.0	33.0			QL=6 ST=2 TYP=3
	8800	ATHN	47	GB	1144.0	1144.6	1.0	61.0			QL=6 ST=2 TYP=5
	2800	OTTA	21	GRF	1417.0	1424.0	70.0	13.2	6.4		
	8800	SGMR	8	S	1419.6	1421.1	2.0	28.0			QL=6 ST=2 TYP=3
	2800	OTTA	3	S	1420.8	1422.0	3.0	16.8	8.4		
	2695	SGMR	4	S/F	1421.0	1422.1	3.0	29.0			QL=6 ST=2 TYP=3
	2800	OTTA	4	S/F	1505.0	1505.5	2.5	12.0	4.6		
	2800	OTTA	21	GRF	1600.0	1605.0	30.0	2.8	2.0		
	2800	OTTA	1	S	1601.9	1602.0	1.0	2.4	1.2		
	2800	OTTA	21	GRF	1640.0	1652.0	40.0	3.2	1.6		
	8800	SGMR	8	S	1642.8	1643.1	1.0	29.0			QL=6 ST=2 TYP=3
	2800	OTTA	1	S	1643.0	1643.3	1.2	2.0	1.0		
	2800	OTTA	8	S	1736.8	1736.9	.5	4.0			
	2800	OTTA	2	S/F	1747.2	1748.1	1.5	6.0	2.6		
	2800	OTTA	1	S	1756.8	1757.3	1.5	2.4	1.0		
	2800	OTTA	4	S/F	2022.0	2023.0	1.7	12.8	2.2		
	2800	OTTA	1A	S	2056.5	2057.0	10.0	3.2	1.6		
	8800	PALE	47	GB	2057.8	2058.8	4.0	139.0			QL=6 ST=2 TYP=5
	8800	SGMR	47	GB	2058.6	2058.8	1.0	90.0			QL=6 ST=2 TYP=5
	2800	OTTA	3	S	2058.7	2059.4	3.0	13.6	6.0		
	2695	SGMR	8	S	2058.8	2059.1	1.0	18.0			QL=6 ST=2 TYP=3
	2695	PALE	8	S	2058.8	2059.1	1.0	20.0			QL=6 ST=2 TYP=3
	8800	MANI	3	S	2335.0	2338.7	8.0	62.1	20.7		

763.6 SFU

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

MARCH 1982

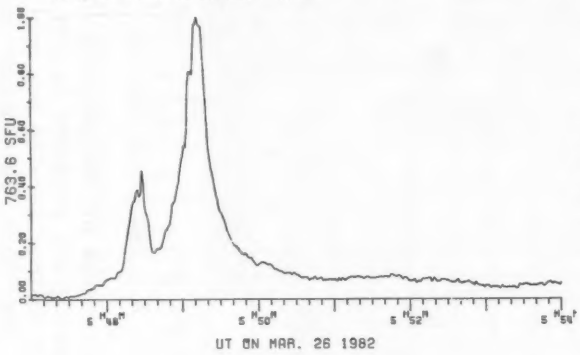
Day of Month	Freq	Sta	Type		Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density (10 -22 W/m 2 Hz) Peak	Mean	Int	Remarks
30	2695	PENT	1	S	2335.5	2337.0	3.0	7.0	3.5		
	2695	MANI	3	S	2336.3	2338.0	4.2	21.4	7.1		
	8800	PALE	8	S	2337.0	2337.1	1.0	30.0			QL=6 ST=2 TYP=3
	8800	LEAR	47	GB	2337.0	2338.0	3.0	50.0			QL=6 ST=2 TYP=5
31	8800	LEAR	47	GB	0041.3	0042.1	4.0	490.0			QL=6 ST=2 TYP=5
	2695	PENT	3	S	0041.5	0042.0	2.5	15.2	6.0		
	2695	MANI	3	S	0041.5	0042.2	1.8	42.7	14.2		
	8800	PALE	47	GB	0041.6	0042.0	2.0	440.0			QL=6 ST=2 TYP=5
	8800	MANI	47	GB	0041.6	0042.4	4.4	562.6	187.5		
	2695	PENT	3	S	0133.0	0133.8	1.6	10.4	5.2		
	2695	MANI	3	S	0227.2	0228.6	4.8	64.0	21.0		
	8800	MANI	3	S	0227.4	0229.0	4.6	36.4	12.1		
	2695	PALE	47	GB	0227.6	0228.5	2.0	67.0			QL=6 ST=2 TYP=5
	8800	PALE	4	S/F	0227.8	0228.6	3.0	40.0			QL=6 ST=2 TYP=3
	8800	LEAR	4	S/F	0312.3	0312.5	40.0	37.0			QL=6 ST=2 TYP=3
	8800	LEAR	47	GB	0409.8	0410.3	4.0	54.0			QL=6 ST=2 TYP=5
	8800	ATHN	47	GB	0531.6	0533.1	11.0	210.0			QL=6 ST=2 TYP=5
	8800	LEAR	47	GB	0531.8	0533.3	4.0	270.0			QL=6 ST=2 TYP=5
	2695	MANI	3	S	0532.3	0533.0	1.7	23.7	7.9		
	2695	ATHN	4	S/F	0532.3	0533.1	10.0	19.0			QL=6 ST=2 TYP=3
	8800	MANI	3	S	0532.7	0533.3	2.3	271.4	90.5		
	2695	LEAR	4	S/F	0533.0	0533.3	4.0	21.0			QL=6 ST=2 TYP=3
	8800	ATHN	4	S/F	0612.3	0616.0	4.0	31.0			QL=6 ST=2 TYP=3
	8800	LEAR	47	GB	0613.6	0616.1	11.0	60.0			QL=6 ST=2 TYP=5
	8800	ATHN	8	S	0833.3	0834.5	2.0	27.0			QL=6 ST=2 TYP=3
	8400	BERN	4	S/F	0833.4	0834.4	5.5	36.0			
	8800	LEAR	8	S	0833.6	0834.5	2.0	42.0			QL=6 ST=2 TYP=3
	2800	OTTA	21	GRF	1230.0	1350.0	110.0	6.4			
	2800	OTTA	1	S	1306.0	1306.5	1.0	2.8	1.4		
	2800	OTTA	40	F	1320.0	1320.8	2.0	5.2			
	2800	OTTA	1	S	1353.0	1354.5	3.5	3.5	1.6		
	2800	OTTA	1	S	1357.5	1357.9	1.0	4.0	1.9		
	2800	OTTA	21	GRF	1435.0	1500.0	65.0	4.8	2.4		
	2800	OTTA	1	S	1453.5	1454.0	1.0	2.0	1.0		
	2800	OTTA	8	S	1553.7	1553.9	.6	2.0	1.0		
	2800	OTTA	1	S	1714.0	1714.3	1.0	4.8	1.8		
	2800	OTTA	3	S	2223.0	2225.1	6.0	90.0	22.0		
	2695	SGMR	47	GB	2223.0	2225.1	6.0	93.0			QL=4 ST=2 TYP=5
	8800	SGMR	47	GB	2223.0	2225.1	6.0	210.0			QL=4 ST=2 TYP=5
	2695	MANI	4	S/F	2225.2	2225.3	1.3	63.7	21.2		
	8800	MANI	4	S/F	2225.2	2225.5	1.3	214.0	71.3		
	8800	LEAR	8	S	2316.6	2316.8	1.0	22.0			QL=6 ST=2 TYP=3
	8800	PALE	4	S/F	2316.6	2316.8	30.0	23.0			QL=6 ST=2 TYP=3

SELECTED SOLAR NOISE BURSTS

MARCH 26-28, 1982

INSTITUTE OF APPLIED PHYSICS, UNIVERSITY OF BERNE, SWITZERLAND

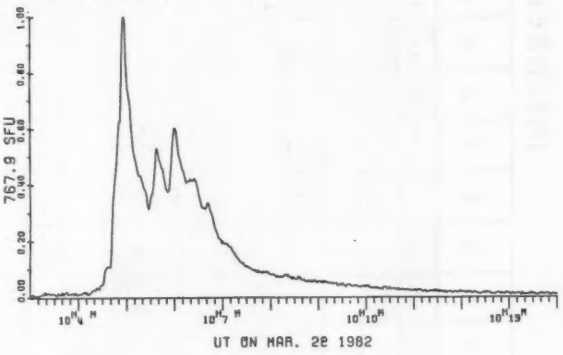
I11.8, F=11.8 GHZ, BW=250.0 MHZ, T=1.0 SEC



UT ON MAR. 26 1982

INSTITUTE OF APPLIED PHYSICS, UNIVERSITY OF BERNE, SWITZERLAND

I 8.4, F=8.4 GHZ, BW=6.0 MHZ, T=1.0 SEC



UT ON MAR. 28 1982

INFERRED IP MAGNETIC FIELD

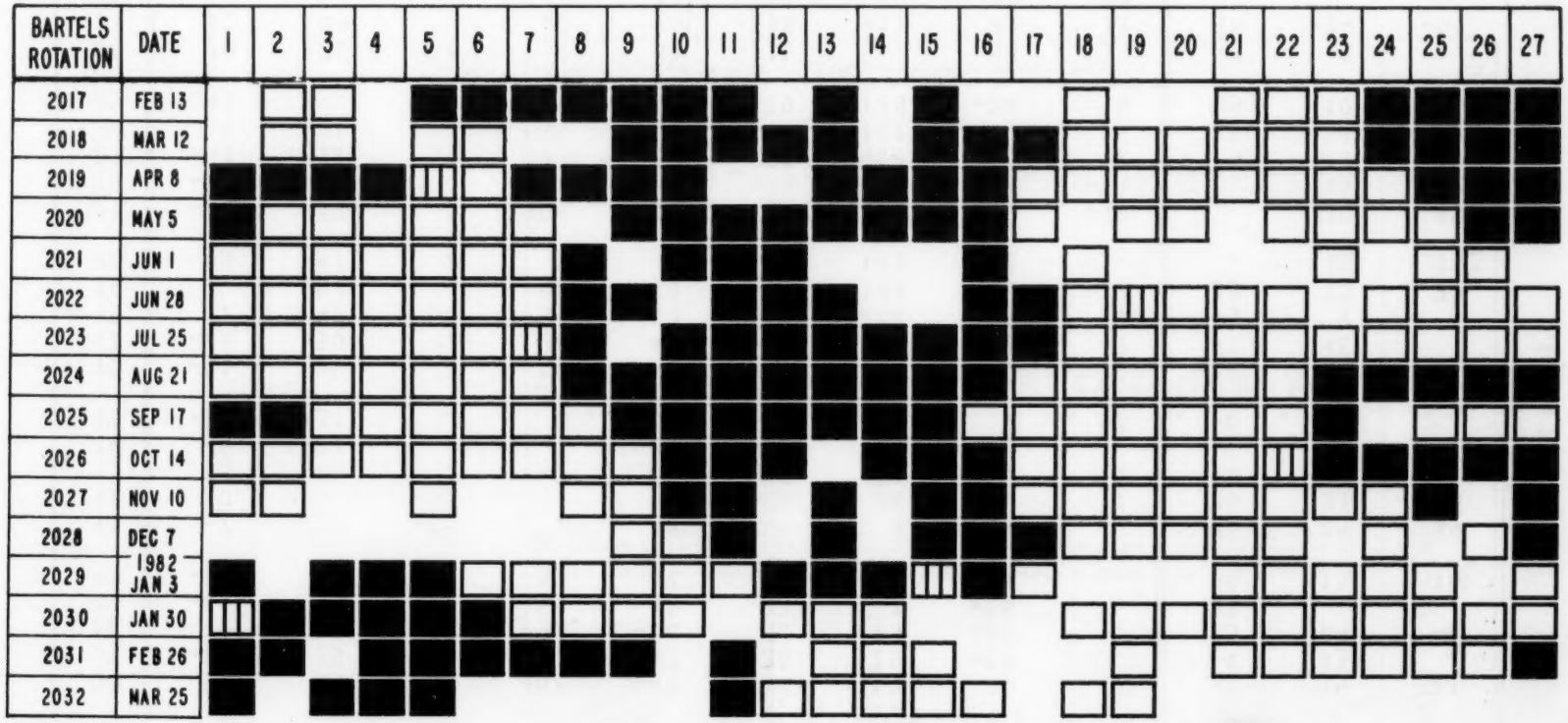
BARTELS ROTATION	DATE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
2012	OCT 6							*		TA	TA		AT	A*								TA			TA			
2013	NOV 2	AT					TA	TA				AT	A*									-	-	AT		TA		
2014	NOV 29				-					-	-				TA		TA	TA	AT		-				-	TA		
2015	DEC 26									-	-				-	TA	-	TA	-	-	-	-	-	-	AT	AT	-	-	-
2016	1981 JAN 22	TA	-		AT	T*	-		-	AT	TA				TA					-					AT			TA	
2017	FEB 18			AT		TA								TA	TA			*						AT		TA		TA	
2018	MAR 17							AT						-					TA				AT	-	-		TA	AT	
2019	APR 13	TA		-	-		-				-				TA				*	AT	-		-		-	AT		-	-
2020	MAY 10	-	-	-	-	TA	AT	TA			TA		TA										*		*				
2021	JUN 6		*								AT				TA			AT		-	-	-	-	-	-	-	-	-	-
2022	JUL 3		-		-		-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2023	JUL 30		-	-	-	-	-		-		-		-		-	-	-	-	TA	-	TA	-	-		-	AT	-	-	-
2024	AUG 26	-	-		-		-	TA	-	TA	-		-		-	TA	-	TA	-		-		-	TA	-		-		-
2025	SEP 22		-		-		-		-		-	-	AT	-	TA	-	TA	-	TA	-	AT	-	TA	-	AT	-	TA	-	TA	-
2026	OCT 19	AT	-	TA	-	TA	-		-		-	-	TA	-	TA	-	TA	-		-		-	AT	-	TA	-		-	
2027	NOV 15		-		-		-	AT	-	AT	-		-		-	-	TA	-	TA	-	TA	-	AT	-		-	AT	-	
2028	DEC 12	TA	-		-		-	AT	-	AT	-		-		-	-	TA	-	AT	-	AT	-	TA	-		-		-	
2029	1982 JAN 8		-		-		-		-	TA	-	TA	-		TA	-		-	TA	-		-		-	AT	-		-	
2030	FEB 4		-		-		-	TA	-	TA	-	TA	-	TA	-		-	TA	-		-		-		-	TA	-		-	TA
2031	MAR 3		-		-		-		-	TA	-	TA	-		-	TA	-		-	TA	-	TA	-		-		-	AT	-
2032	MAR 30		-	TA	-																								

[ ] = definitely towards the sun [ ] = definitely away from the sun

T = towards the sun A = away from the sun * = effect doubtful or not discernible - = missing data

The table shows daily inferences of the polarity of the interplanetary magnetic field. The first half of the day is based principally on magnetograms produced by the magnetometer at the Vostok Antarctic Station of the USSR. The magnetometer of the U.S. Air Weather Service now operated at Thule by the Danish Meteorological Institute is used for the second half of the day. The Thule magnetometer ceased operating in August 1981.

STANFORD MEAN SOLAR MAGNETIC FIELD



POLARITY OF THE MEAN SOLAR MAGNETIC FIELD: □ = FIELD >2μT, ▥ = -2μT ≤FIELD ≤2μT, ■ = FIELD <-2μT

No box visible indicates no data available for that day.

NOTE: Data are taken daily at 2000 UT. Dates given are not Bartels Rotation dates. These earlier dates correspond to the occurrence of phenomena on the Sun that affect the Earth during the given Bartels Rotation.

STANFORD MEAN SOLAR MAGNETIC FIELD (MICROTESLA)

	1981									1982		
day	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.	MARCH
01	75	2	16	53	-49	-134	-27	94	41	15	-20	-19
02	82	-51	21	49	.	-87	11	82	34	-6	-44	-9
03	31	-66	17	41	-72	-56	70	55	49	-17	-29	-20
04	-23	-56	6	14	-80	-21	104	-1	-3	.	-3	-39
05	-67	-24	28	-17	-67	-7	115	-19	.	-10	9	-44
06	-85	23	33	-62	-48	11	104	-36	-12	-5	19	-21
07	-97	25	3	.	-33	26	28	-29	.	-4	43	.
08	-76	36	-27	-93	-26	30	25	-23	.	25	64	-2
09	-40	45	.	-56	-19	33	-7	-16	.	23	.	.
10	-28	49	-96	-43	-7	32	.	11	.	36	15	16
11	-7	35	-75	.	16	4	8	34	.	45	24	34
12	0	.	-58	.	58	-29	32	.	.	35	33	35
13	13	-76	.	-9	68	-47	43	.	.	16	.	.
14	-6	-147	.	-7	81	-37	64	105	.	-7	.	.
15	-29	-131	.	9	68	-24	103	.	57	-6	.	.
16	-61	-94	-3	0	49	-32	115	.	17	-12	14	21
17	-73	-50	.	38	49	-24	167	48	-5	-1	16	.
18	.	-47	50	59	42	-8	218	3	.	-3	5	4
19	.	-53	.	66	16	11	193	-28	-37	33	15	20
20	-85	-41	.	.	12	85	115	-45	.	.	27	31
21	-79	13	.	108	31	135	65	.	-39	.	38	25
22	-86	.	.	107	38	124	9	-65	-11	.	48	22
23	-51	72	59	73	52	60	-62	.	-2	9	41	14
24	5	61	.	34	67	6	-107	-43	35	25	28	-2
25	43	.	29	29	92	-79	-128	-20	4	35	10	-26
26	70	126	18	34	64	-115	.	58	39	42	-3	.
27	67	109	.	28	15	-138	-61	83	17	36	-34	-61
28	84	50	44	33	-12	-144	-60	96	29	.	.	-56
29	122	24	62	43	-64	-121	-19	59	.	15		-53
30	61	-9	50	38	-84	-75	67	55	24	0		.
31		-4		1	-143		87		.	-10		.

DOT SYMBOL INDICATES NO DATA AVAILABLE FOR THE DAY.

PIONEER XII

MARCH 1982

DATE Mar '82	TIME (UT)	ESV (°)	U_{H+} (km/s)	N_{H+} (H^+/cc)	T_{H+} (x10^6 K)
1	0511	024.	577.	29.2	0.517
2	0515		409.	11.6	.068
3	0502		365.	15.3	.048
4	0515		412.	53.1	.054
5	0519		350.	27.4	.088
6	0600		359.	17.7	.055
7	0542		328.	28.3	.041
8	0356		535.	8.8	.106
9	1521		549.	5.5	.474
10	0421		612.	3.6	.231
11	0527		465.	5.1	.093
12	0324		418.	17.9	.119
13	0612		481.	13.7	.043
14	0442		505.	13.2	.125
15	0412	032.	377.	15.9	.091
16	0416		392.	36.8	.056
17	0410		341.	29.2	.216
18	0502		433.	10.5	.135
19	0522		539.	19.2	.275
20	0446		586.	8.1	.212
21	0551		579.	9.6	.166
22	0429		401.	11.6	.078
23	0323		432.	12.8	.058
24	0512		326.	27.3	.017
25	0613		500.	12.7	.291
26	1631		507.	12.4	.198
27	0432		594.	8.8	.129
28	0436		532.	8.5	.052
29	0506		460.	10.7	.156
30	0415		314.	7.7	.094
31	0613		437.	36.6	.094

BOULDER GEOMAGNETIC SUBSTORM LOG

MARCH 1982

DATE	ONSET TIME	DIR	COMMENTS
03/01	0450	East	
	0610		Localized SS vicinity Inuvik.
	0635	East	Weak SS
	1138	SSC	Magstorm follows.
03/02			Magstorm continues through 2100 UT.
03/03			Field intermittently unsettled.
	0425	East	
	0755	West	Variable spatial injections with recovery near 1130 UT.
	1335		Localized SS vicinity College.
03/04	1030	West	Moderate SS
03/05	0530	East	
	0845		Weak onset, several weak injections with recovery near 1130 UT.
03/06			Quiet day.
03/07			Quiet day.
03/08			Field intermittently unsettled with no significant SS activity.
03/09	0810		Weak positive impulse H-component all mid/low latitude stations.
	0940		Slow onset, weak SS.
	1030		Localized SS vicinity College.
	1540	West	Slow onset at College with slow expansion northward and eastward. Several minor injections with recovery near 1830 UT.
03/10	0720	= center	Moderate SS, several injections with recovery near 1000 UT.
03/11	0525	West	Moderate SS
	1240		Weak SS vicinity College.
03/12	0700		Weak SS, several minor injections with recovery near 0900 UT.
	1535	West	Slow onset at College with slow expansion northward and eastward. Field unsettled balance of day.
03/13			Field intermittently unsettled.
	0210	East	Boulder in partial ring current sector.
	0720	East	Weak SS
03/14			Field intermittently unsettled.
	1115		Weak SS
	1635		Localized SS Norman Wells to Inuvik.
03/15	0625	= center	Weak SS
03/16			Field slightly unsettled.
03/17			Field unsettled after 0930 UT with no distinctive SS activity.
03/18			Field intermittently unsettled.
	0710		Weak SS
	0840		Weak SS
	1025		Localized SS College to Anchorage.
03/19			Field intermittently unsettled.
	1105		Weak SS
03/20			Field unsettled after 0500 UT.
	0650		Weak SS
	0850		Weak SS
	0955		Localized SS College to Ft. Yukon.
	1345	West	Slow onset, several injections with recovery near 1700 UT.
03/21			Field active after 0500 UT with spatial and temporal variations in substorm injection processes.
03/22			Field very active through 1900 UT.
	0155		Moderate Bay D-component Boulder-Tucson.
	0525	= center	
	0925	West	
	1155		Localized SS vicinity College.
03/23	0910		Slow onset, slow expansion westward along oval stations.
	1230		Weak SS
03/24			Field unsettled after 1400 UT with no distinctive SS activity.
03/25			Field intermittently unsettled.
	0950	West	
	1215		Initial onset at College, secondary injection at 1240 UT.
03/26			Field intermittently unsettled.
	1035		Weak SS
03/27			Field intermittently unsettled through 1300 UT.
	1125		Slow onset at College.
03/28	0725		Weak SS, several minor injections.
03/29			Field intermittently unsettled.
	0510	East	Weak SS
	0700	West	Moderate secondary injection localized College at 0735 UT.
03/30	0400	West	
	1110	West	Initial onset at College; several injections with recovery near 1430 UT.
03/31			Field unsettled.
	0345	East	
	1135		Initial onset at College, several injections with recovery near 1430 UT.
	1710		

SGD 452 Part I (Prompt)

FEBRUARY 1982 DATA

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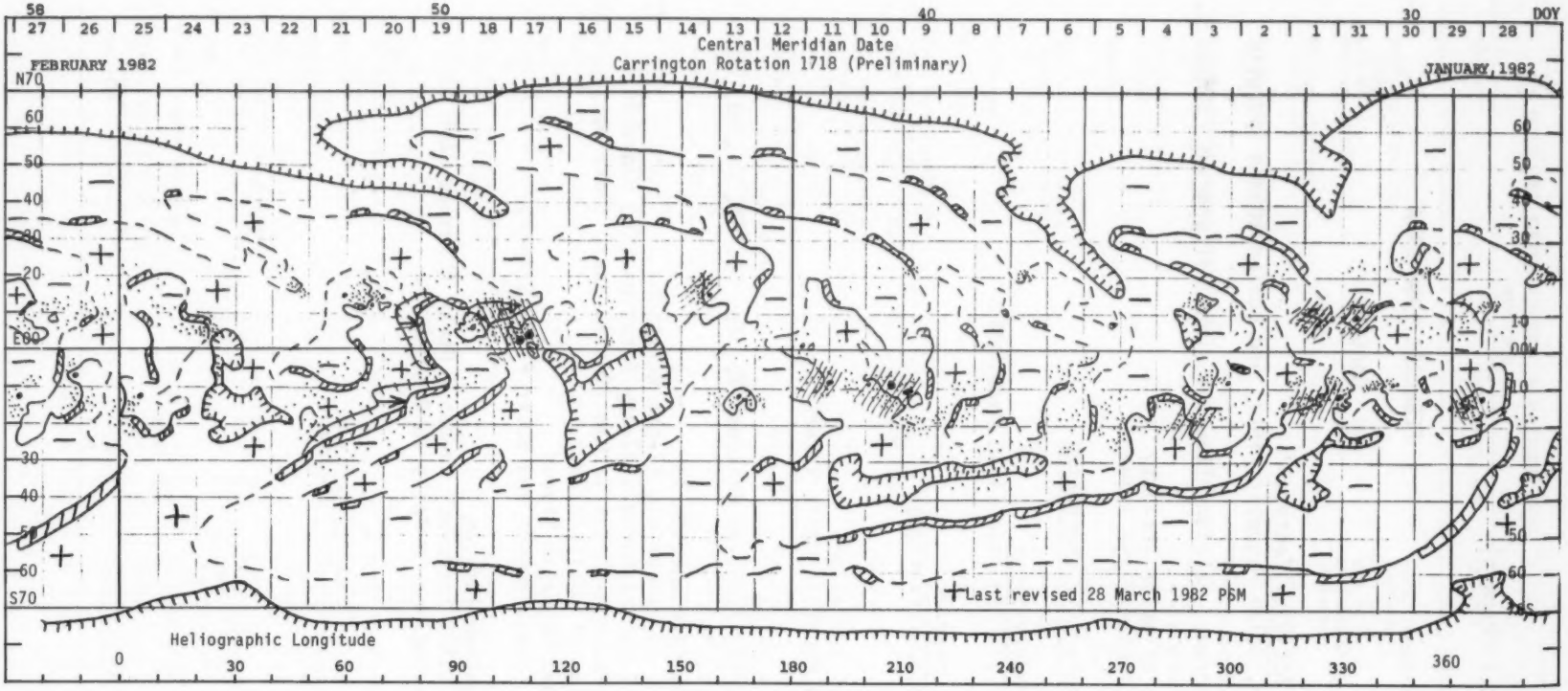
Hα SYNOPTIC CHART

CARRINGTON ROTATION 1718 (PRELIMINARY)

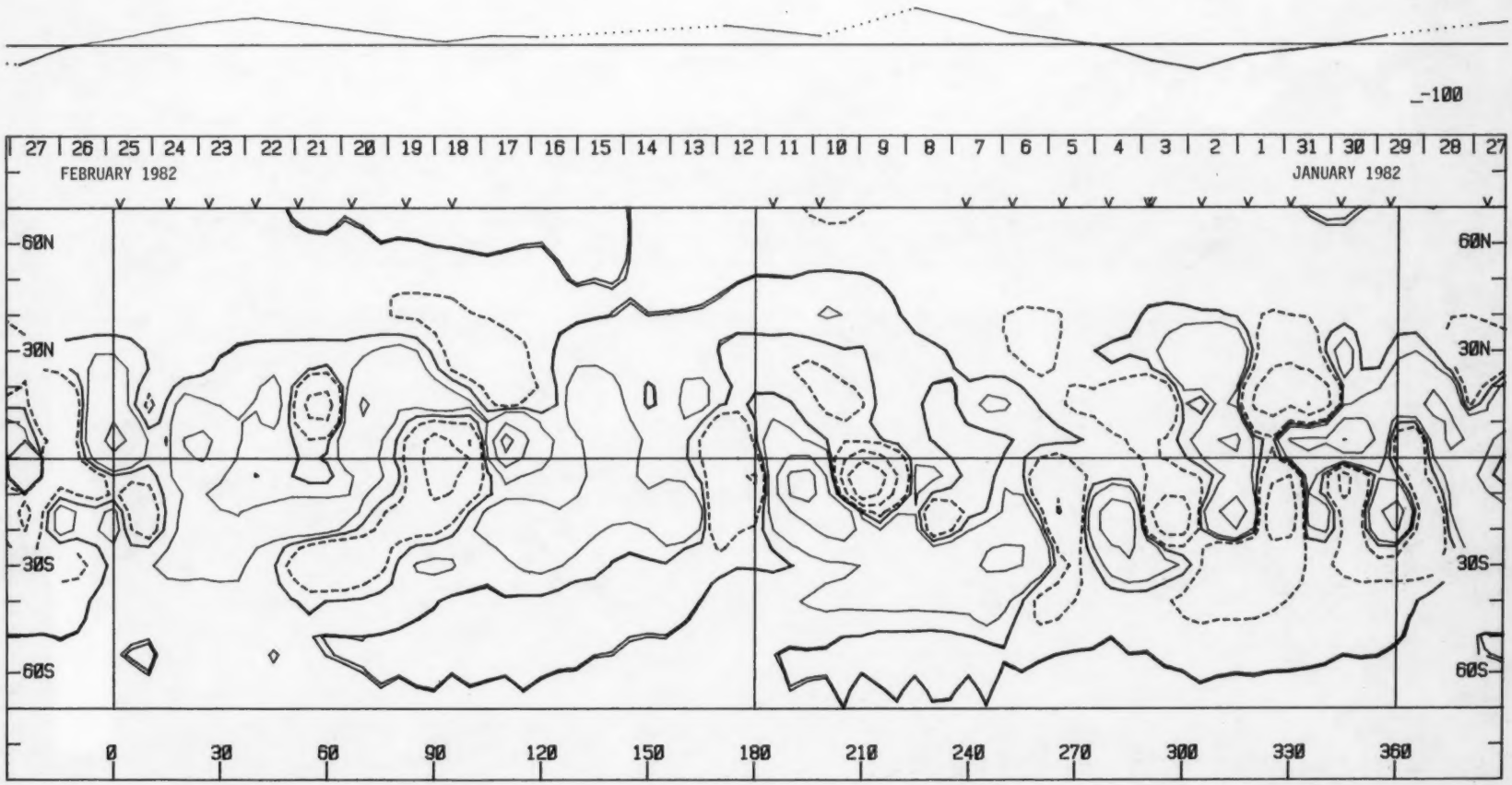


3/28/82

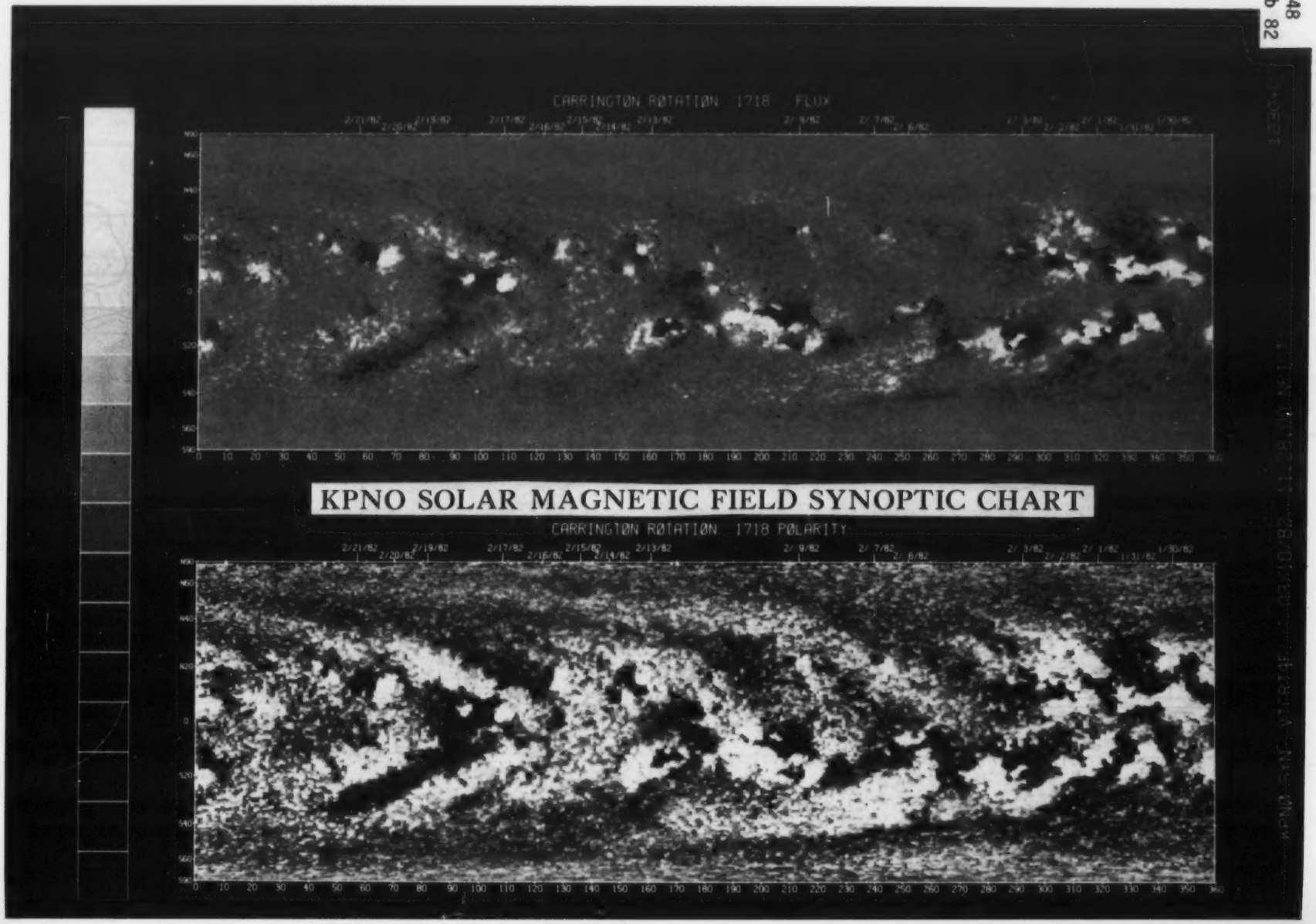
SOLAR MAGNETIC FIELD SYNOPTIC CHART
CARRINGTON ROTATION 1718

Stanford Solar Observatory

0,±100,200,500... μT



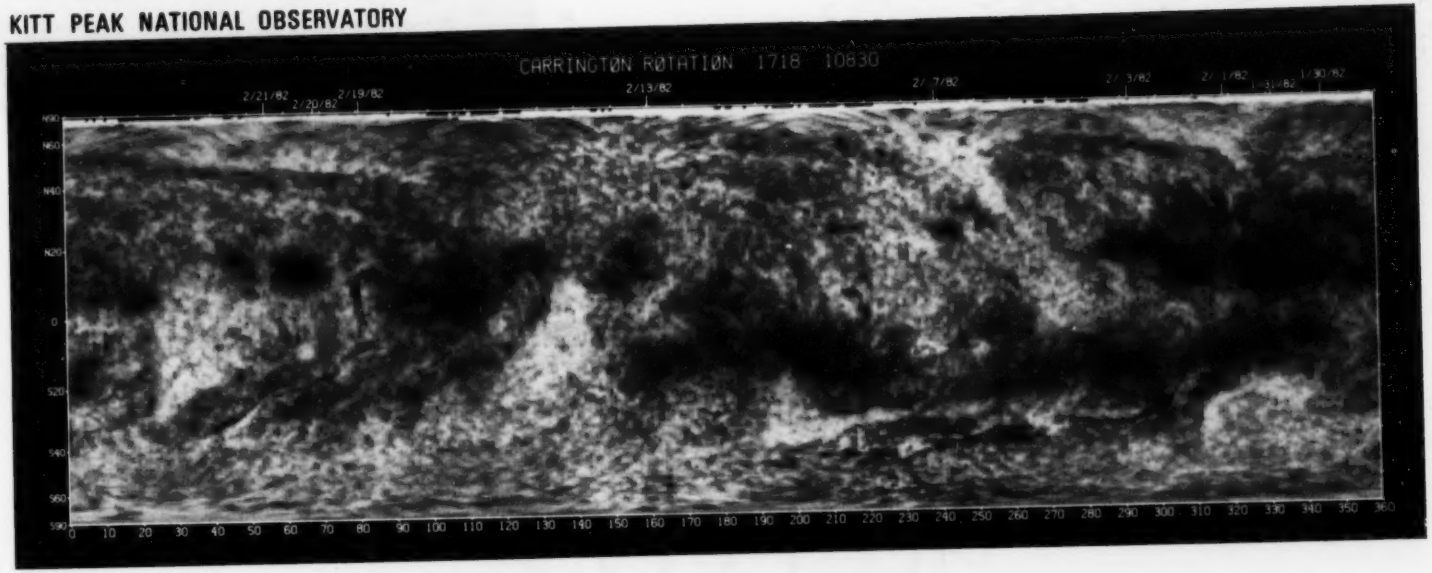
47
Feb 82



KPNO SOLAR MAGNETIC FIELD SYNOPTIC CHART

HELIUM 10830Å SYNOPTIC MAPS
CARRINGTON ROTATION 1718

KITT PEAK NATIONAL OBSERVATORY



FEBRUARY 1, 1982 (P=-12.08, B_o=-6.03, L_o=328.69)

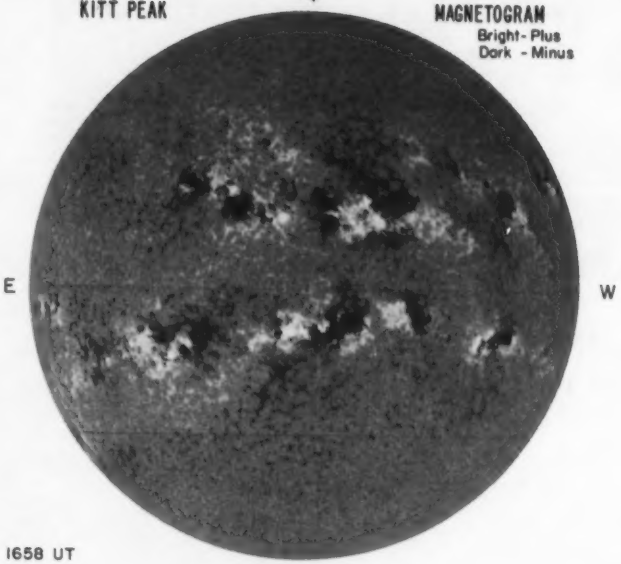
SACRAMENTO PEAK Np CORONA
5303 Å

NO DATA FEBRUARY 1, 2, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14, 18, 22, 24, 25, 26, 27

E W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



1658 UT

Sp Np MT. WILSON MAGNETOGRAM
Solid - Plus
Dotted - Minus

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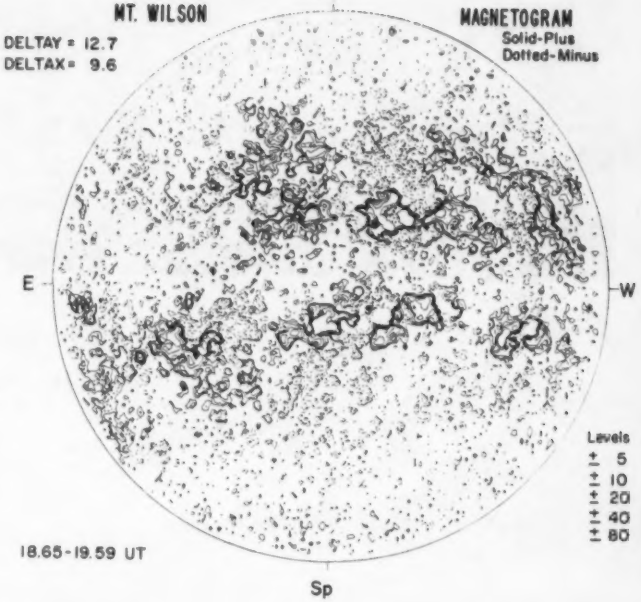
DELTAX = 9.6

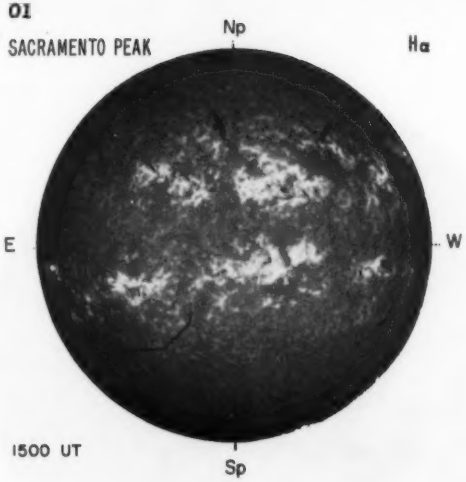


18.65 - 19.59 UT

01

O1

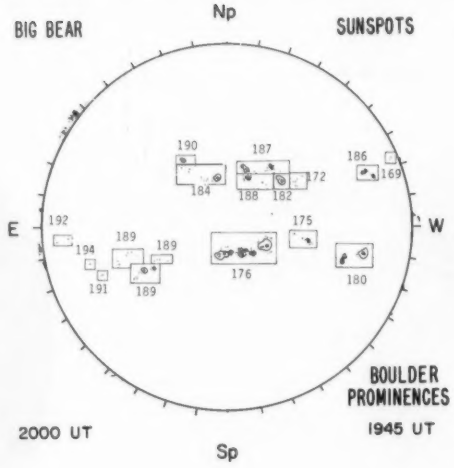
SACRAMENTO PEAK



1500 UT

Hα

BIG BEAR



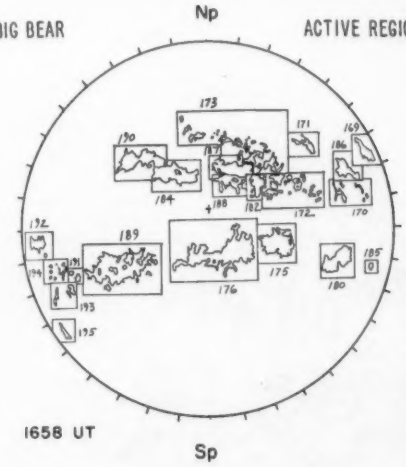
2000 UT

SUNSPOTS

BOULDER PROMINENCES

1945 UT

BIG BEAR



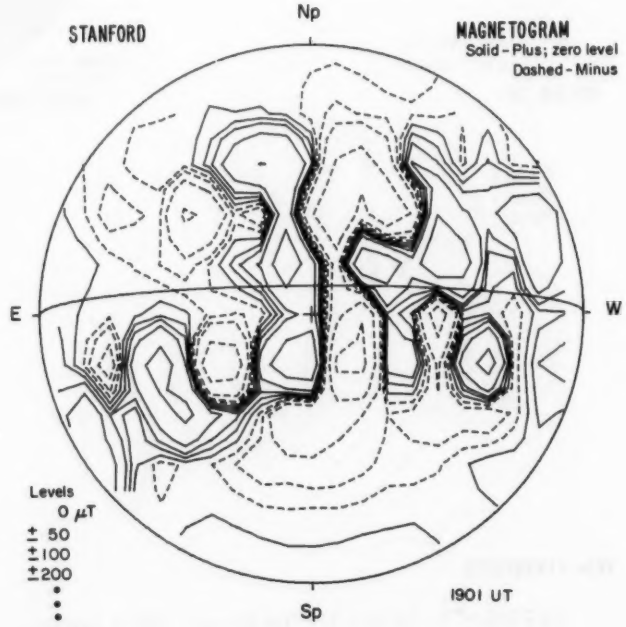
1658 UT

ACTIVE REGIONS

FAIR	WM

69- 1900-2.5
71- 0800-2.5
72- 2000-3.0
73- 2700-2.5
75- 2700-4.0
76- 5600-4.0
80- 2500-3.5
82- 0700-2.5
84- 2700-3.0
86- 1500-2.5
87- 1600-3.5
88- 1300-3.5
89- 5000-3.0
90- 2800-3.0
91- 0200-2.5
92- 1500-3.0

STANFORD



MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

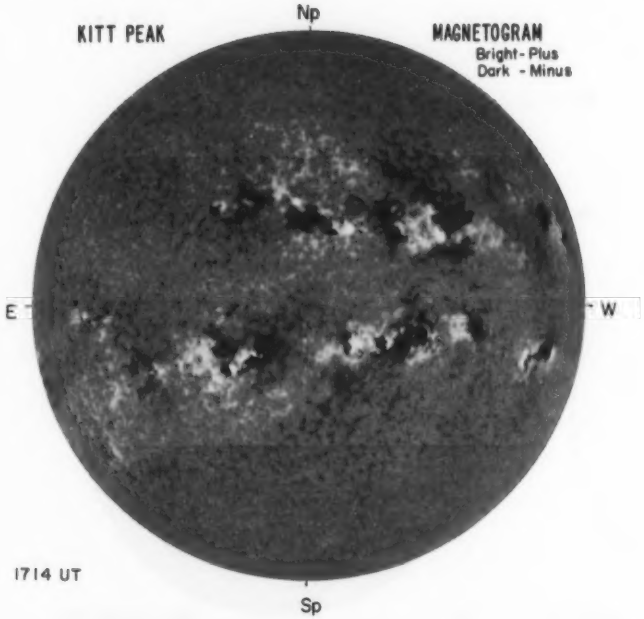
1901 UT

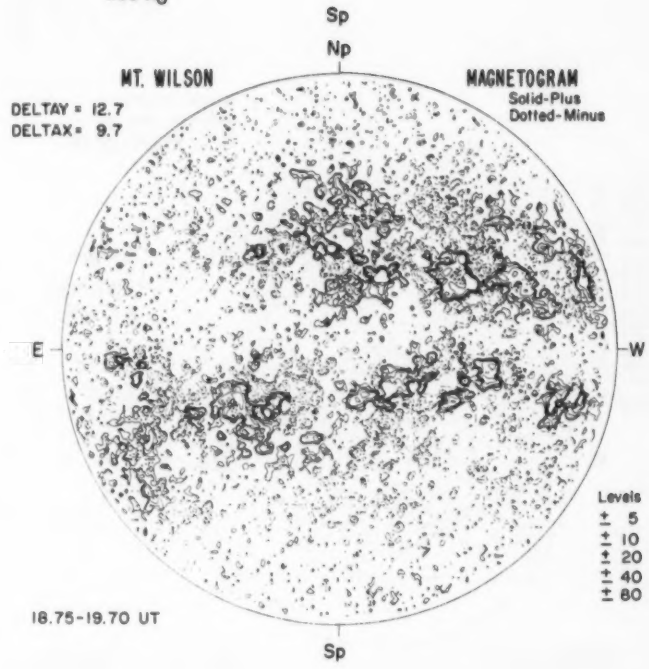
FEBRUARY 2, 1982 (P=-12.49, B_o=-6.10, L_o=315.53)

SACRAMENTO PEAK Np CORONA 5303 Å

E NO DATA W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$





02

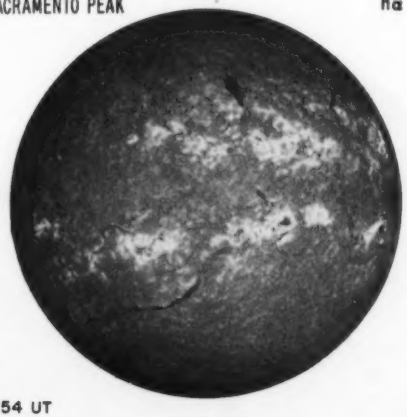
Np

Np

Np

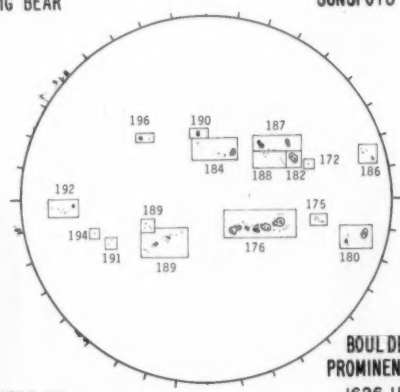
02

SACRAMENTO PEAK Hα



1454 UT

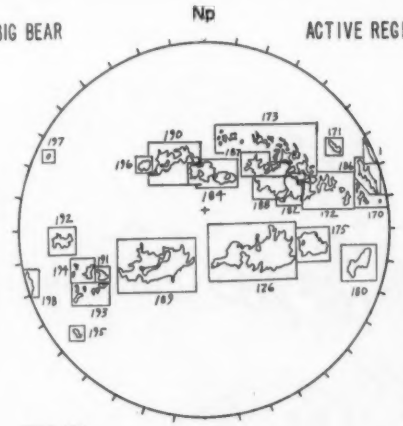
BIG BEAR SUNSPOTS



1635 UT

BOULDER PROMINENCES 1626 UT

BIG BEAR ACTIVE REGIONS



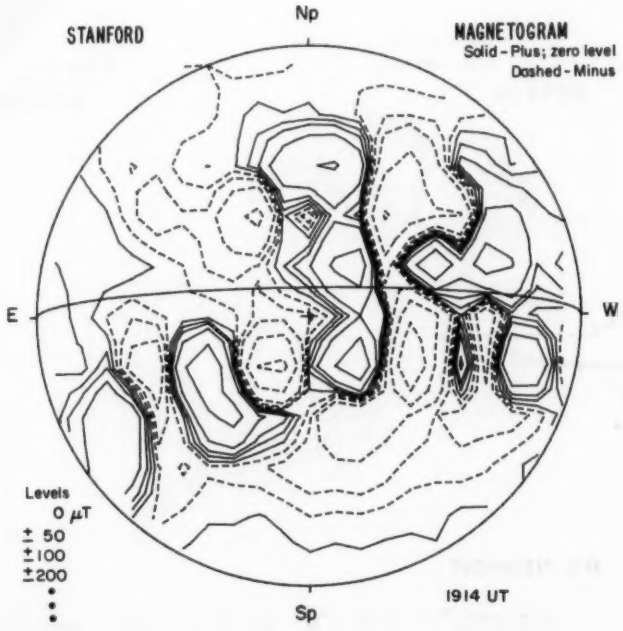
1714 UT

POOR	WM

69- 1500-2.5
71- 0500-2.5
72- 1800-2.5
73- 2700-2.5
75- 2700-3.5
76- 5500-3.5
80- 2700-3.5
82- 1300-2.5
84- 2200-2.5
86- 1700-2.5
87- 1700-3.0
88- 1700-3.0
89- 4700-3.5
90- 2300-3.0
92- 1200-2.5
96- 0500-3.5
98- 2800-2.5

STANFORD MAGNETOGRAM

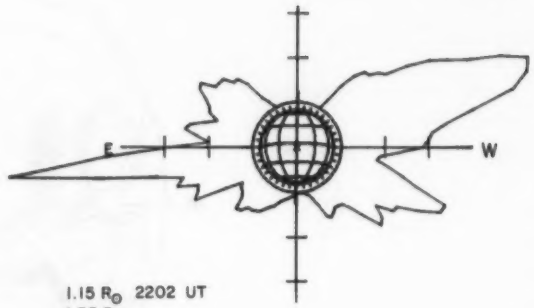
Solid - Plus; zero level
Dashed - Minus



1914 UT

FEBRUARY 3, 1982 (P=-12.89, B_o=-6.17, L_o=302.36)

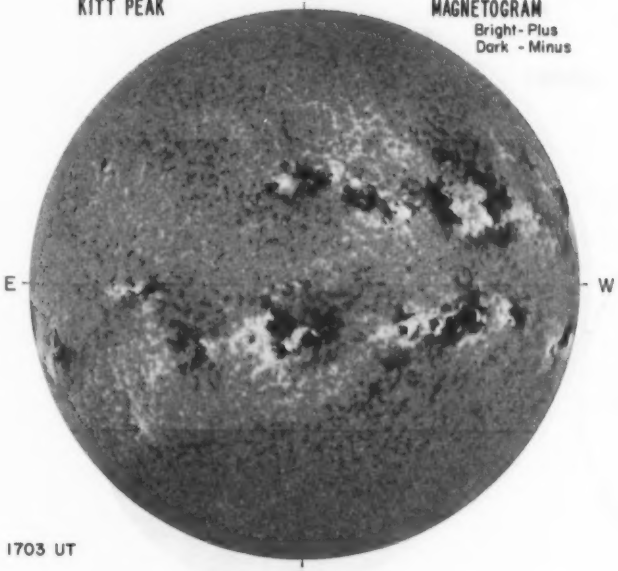
SACRAMENTO PEAK Np CORONA
5303 Å



1.15 $R_\odot$ 2202 UT
1.35 $R_\odot$
1.55 $R_\odot$

Sp

KITT PEAK Np MAGNETOGRAM
Bright-Plus
Dark - Minus



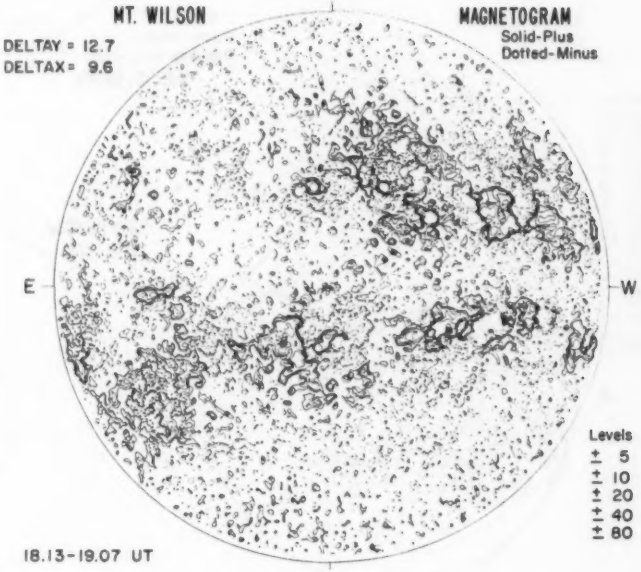
1703 UT

Sp

Np

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.7
DELTAX = 9.6



18.13-19.07 UT

Sp

03

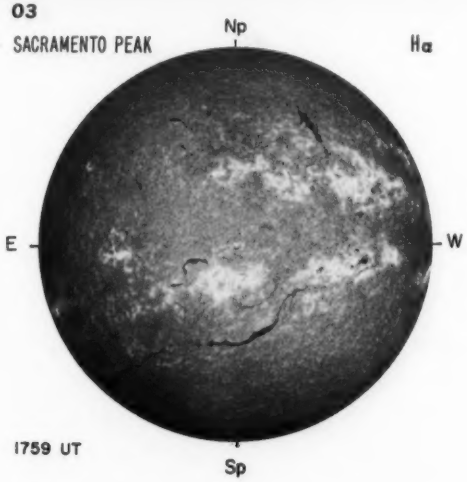
Np

Np

Np

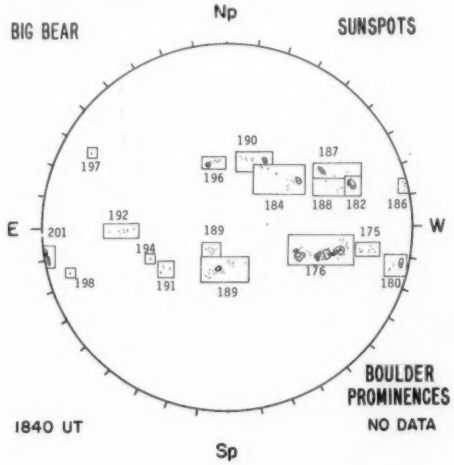
03

SACRAMENTO PEAK



1759 UT

BIG BEAR SUNSPOTS

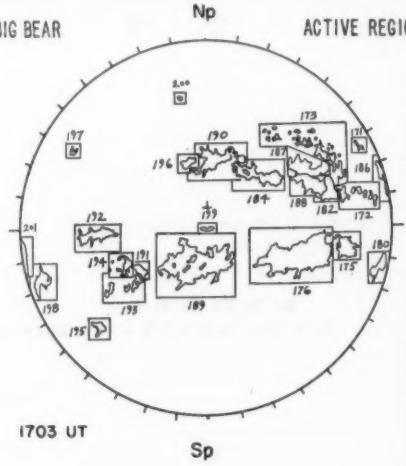


1840 UT

BOULDER PROMINENCES

NO DATA

BIG BEAR ACTIVE REGIONS



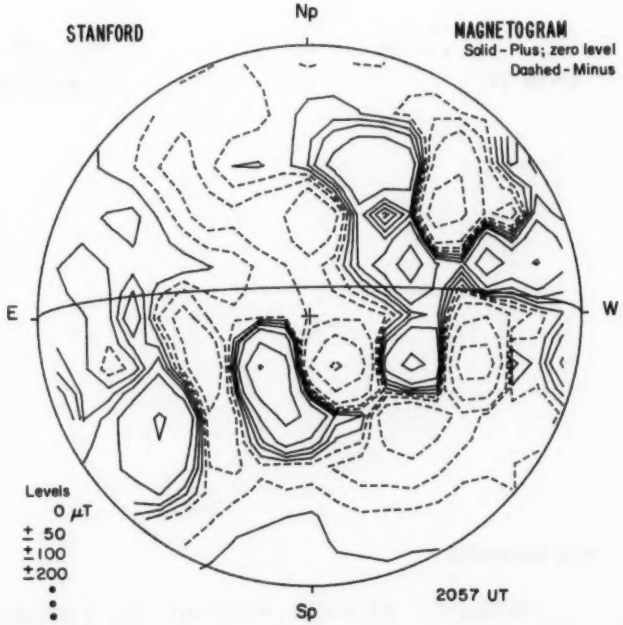
1703 UT

FAIR	WM

71- 0300-2.5
73- 2700-2.5
75- 2300-3.0
76- 7000-3.5
80- 2400-3.0
82- 1300-2.5
84- 1700-2.5
87- 1900-2.5
88- 1800-2.5
89- 6200-3.5
90- 2300-2.5
91- 0400-3.0
96- 0500-3.5
98- 2200-2.5
00- 0100-2.5
01- 2500-4.0

STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus



2057 UT

55
Feb 82

FEBRUARY 4, 1982 (P=-13.29, B_o=-6.23, L_o=289.19)

SACRAMENTO PEAK Np CORONA 5303 Å

E NO DATA W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

Sp

Np

KITT PEAK MAGNETOGRAM
Bright - Plus
Dark - Minus

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY =
DELTAX =

E NO DATA FEBRUARY 4, 5, 8, 10, 11, 12, 18, 23, 24, 25 W

E NO DATA FEBRUARY 4, 5, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 24, 25, 26, 28 W

Levels
± 5
± 10
± 20
± 40
± 80

Sp

Sp

04

04

SACRAMENTO PEAK

Np

Hα

E W

Sp

1446 UT

BIG BEAR

Np

SUNSPOTS

196 190 187 182 184 188 192 201 199 189 194 191 189 176 175

E W

Sp

1735 UT

BIG BEAR

Np

ACTIVE REGIONS

NO DATA FEBRUARY 4, 5, 6, 8, 10, 11, 12, 18, 23, 24, 25

E W

Sp

BOULDER PROMINENCES

NO DATA

STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

E W

Levels

0 μT

± 50

±100

±200

Sp

1817 UT

FEBRUARY 5, 1982 (P=-13.68, B_o=-6.30, L_o=276.03)

SACRAMENTO PEAK Np CORONA 5303 Å

E NO DATA W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

Sp

Np

KITT PEAK

MAGNETOGRAM
Bright - Plus
Dark - Minus

MT. WILSON

DELTAY =
DELTAX =

MAGNETOGRAM
Solid - Plus
Dotted - Minus

E NO DATA W E NO DATA W

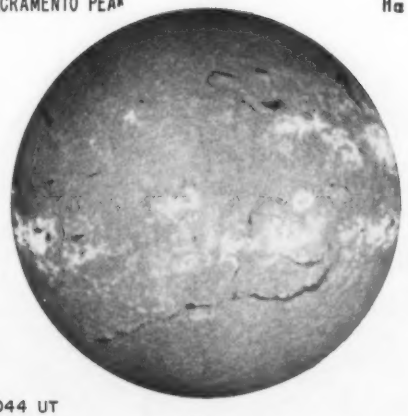
Levels
± 5
± 10
± 20
± 40
± 80

Sp Sp

05

05

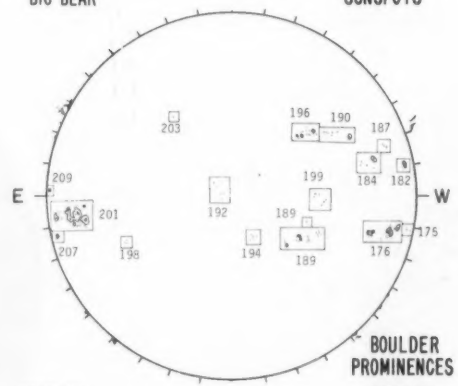
SACRAMENTO PEAK Np Hα



E W

2044 UT Sp

BIG BEAR Np SUNSPOTS



E W E

1950 UT Sp

BIG BEAR Np ACTIVE REGIONS

NO DATA

W

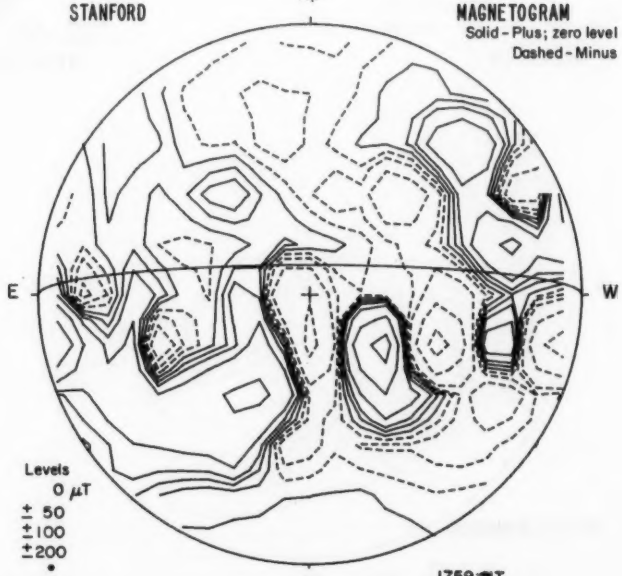
BOULDER PROMINENCES

1653 UT Sp

STANFORD Np MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E W

Levels

0 μT

± 50

±100

±200

1759 UT Sp

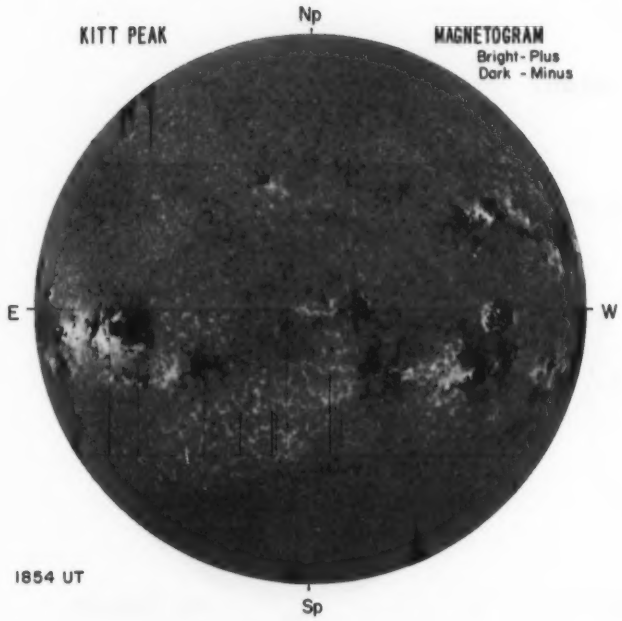
FEBRUARY 6, 1982 (P= -14.07, B_o=-6.36, L_o=262.86)

SACRAMENTO PEAK Np CORONA 5303 Å

E NO DATA W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

KITT PEAK

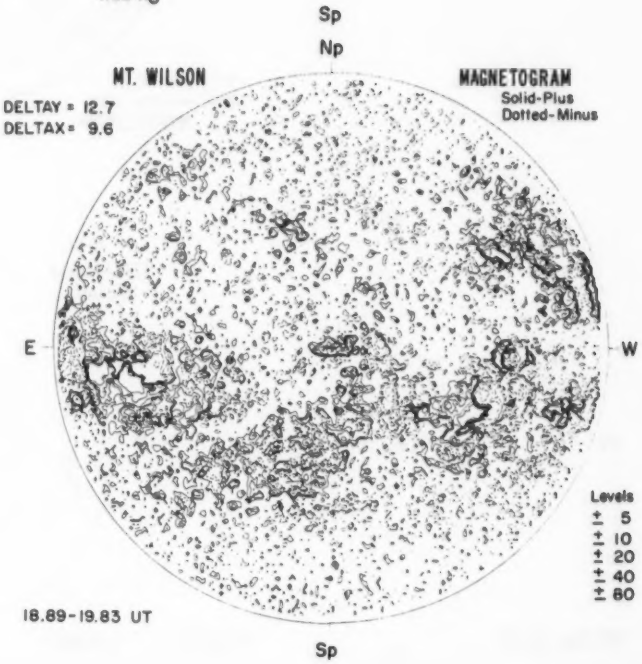


MAGNETOGRAM
Bright - Plus
Dark - Minus

1854 UT

MT. WILSON

DELTAY = 12.7
DELTAX = 9.6



MAGNETOGRAM
Solid - Plus
Dotted - Minus

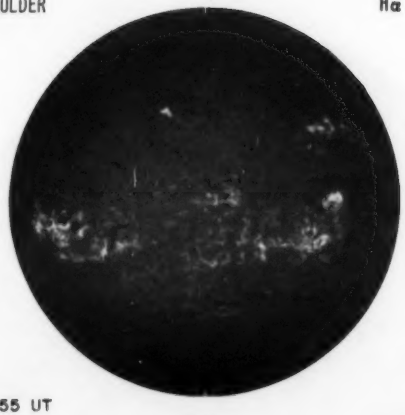
Levels
± 5
± 10
± 20
± 40
± 80

18.89-19.83 UT

06

BOULDER

Np



E W

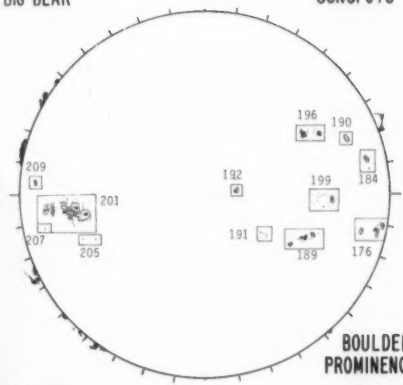
1655 UT

Sp

Hα

BIG BEAR

Np



E W

1750 UT

Sp

SUNSPOTS

BIG BEAR

BOULDER PROMINENCES

1655 UT

Np

NO DATA

Sp

ACTIVE REGIONS

W

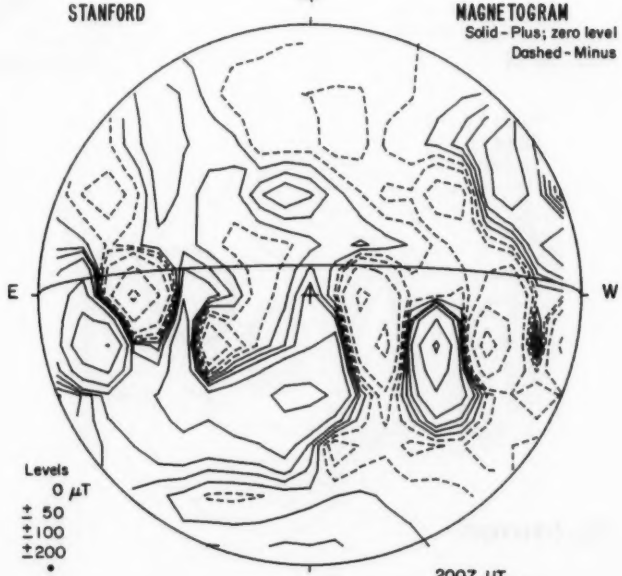
STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E W

Levels

0 μT

± 50

±100

±200

2007 UT

Sp

FEBRUARY 7, 1982 (P=-14.45, B_o=-6.42, L_o=249.69)

SACRAMENTO PEAK Np CORONA 5303 Å

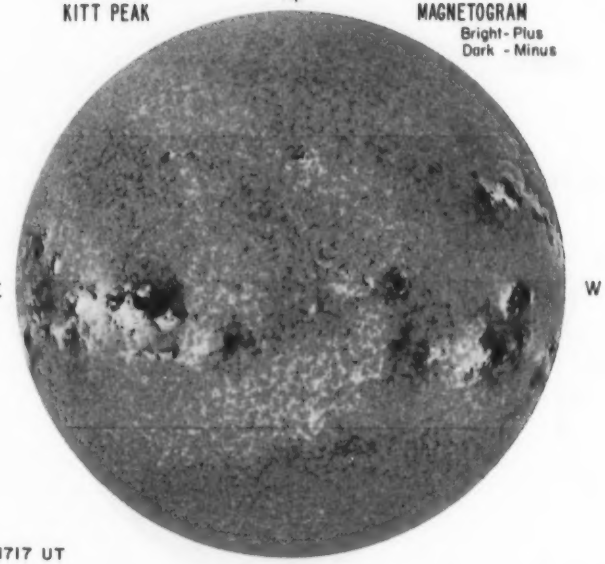
E NO DATA W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

Sp

Np

KITT PEAK MAGNETOGRAM
Bright - Plus
Dark - Minus



E W

1717 UT

Sp

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY =
DELTAX =

E NO DATA W

Sp

Levels
± 5
± 10
± 20
± 40
± 80

07

SACRAMENTO PEAK

Np

E W E

Sp

1513 UT

Hα

BIG BEAR

Np

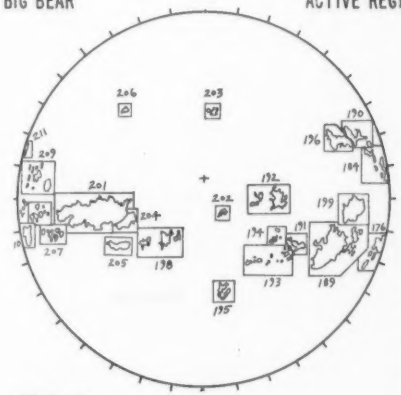
NO DATA

Sp

SUNSPOTS

BIG BEAR

Np



W E W

Sp

1717 UT

ACTIVE REGIONS

GOOD	WM

76- 2000-3.0
84- 1500-2.5
89- 5700-3.5
90- 1400-2.5
91- 0400-2.5
96- 1500-3.5
98- 1000-2.5
99- 2400-3.5
01- 6000-3.5
03- 0200-2.5
04- 0800-4.0
05- 0600-3.5
06- 0200-2.5
07- 0600-2.5
10- 1300-2.5
11- 0600-2.5

BOULDER PROMINENCES

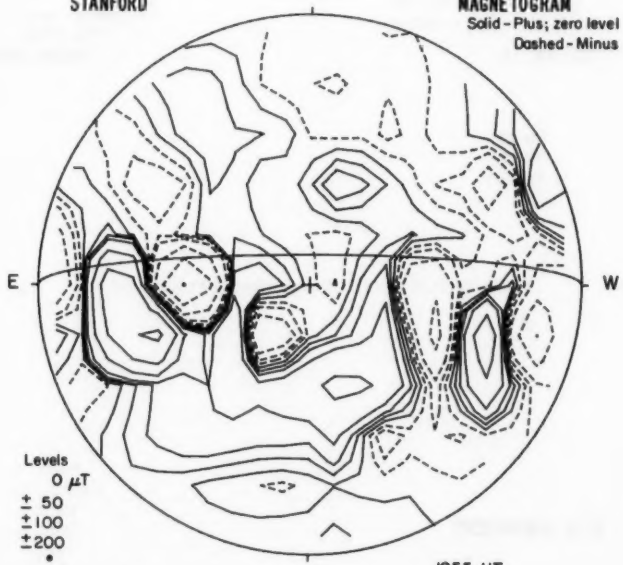
STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E W

Levels

0 μT

± 50

±100

±200

Sp

1955 UT

FEBRUARY 8, 1982 (P=-14.83, B_o=-6.48, L_o=236.53)

SACRAMENTO PEAK Np CORONA
5303 Å

E NO DATA W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

Sp

Np

KITT PEAK MAGNETOGRAM
Bright - Plus
Dark - Minus

MT. WILSON MAGNETOGRAM
Solid - Plus
Dotted - Minus

DELTAY =
DELTAX =

E NO DATA W E NO DATA W

Levels
± 5
± 10
± 20
± 40
± 80

Sp Sp

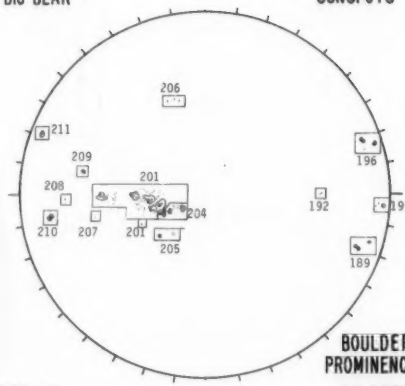
08

SACRAMENTO PEAK Np Hα

E NO DATA FEBRUARY 8, 19, 22, 25 W

Sp

BIG BEAR Np



E W E

2005 UT

Sp

SUNSPOTS BIG BEAR Np

BOULDER PROMINENCES

NO DATA

Sp

ACTIVE REGIONS Np

NO DATA

W E

Sp

STANFORD Np

E NO DATA FEBRUARY 8, 9, 12, 13, 14, 15, 16, 17, 26, 27, 28 W

Sp

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

Levels

0 μT

± 50

±100

±200

•

••

•

FEBRUARY 9, 1982 (P=-15.20, B_o=-6.53, L_o=223.36)

SACRAMENTO PEAK Np CORONA 5303 Å

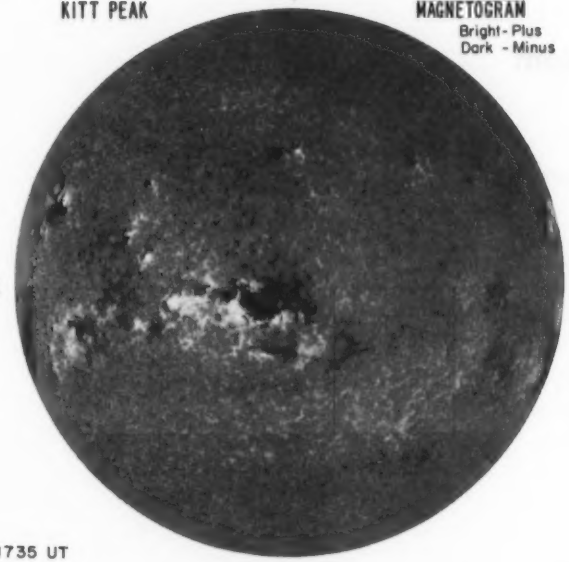
E NO DATA W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

Sp

Np

KITT PEAK MAGNETOGRAM
Bright - Plus
Dark - Minus



E W

1735 UT

Sp

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY =
DELTAX =

E NO DATA W

Levels
± 5
± 10
± 20
± 40
± 80

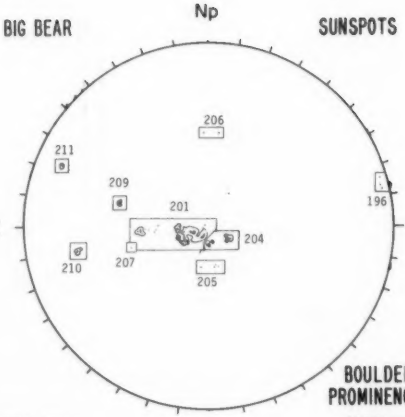
Sp

09

SACRAMENTO PEAK Hα

1523 UT

BIG BEAR SUNSPOTS



1955 UT

BOULDER PROMINENCES

1558 UT

BIG BEAR ACTIVE REGIONS

1733 UT

POOR	WM
89-	3200-2.5
93-	0500-2.5
96-	2500-3.5
98-	1100-2.5
99-	1200-3.0
01-	7600-3.5
04-	1200-3.5
05-	0700-3.0
06-	0400-2.5
07-	0400-2.5
10-	2800-2.5
11-	1700-2.5

STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

E NO DATA W

Levels

0 μT

± 50

±100

±200

•

•

•

Sp

FEBRUARY 10, 1982 (P=-15.57, B_o=-6.59, L_o=210.19)

SACRAMENTO PEAK

Np

CORONA
5303 Å

E

NO DATA

W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

Sp

Np

KITT PEAK

MAGNETOGRAM
Bright - Plus
Dark - Minus

MT. WILSON

DELTAY =
DELTAX =

MAGNETOGRAM
Solid - Plus
Dotted - Minus

E

NO DATA

W

E

NO DATA

W

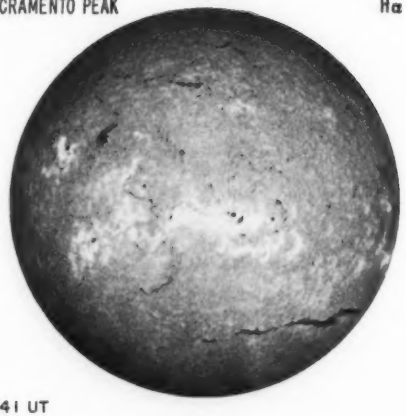
Levels
± 5
± 10
± 20
± 40
± 80

Sp

Sp

10

SACRAMENTO PEAK Np Hα

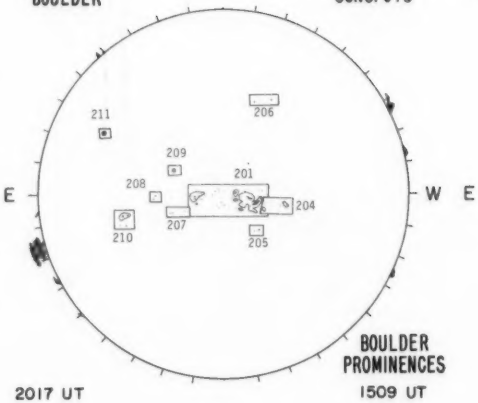


E W

1741 UT

Sp

BOULDER Np SUNSPOTS



E W E

2017 UT

Sp

BOULDER PROMINENCES

1509 UT

BIG BEAR Np ACTIVE REGIONS

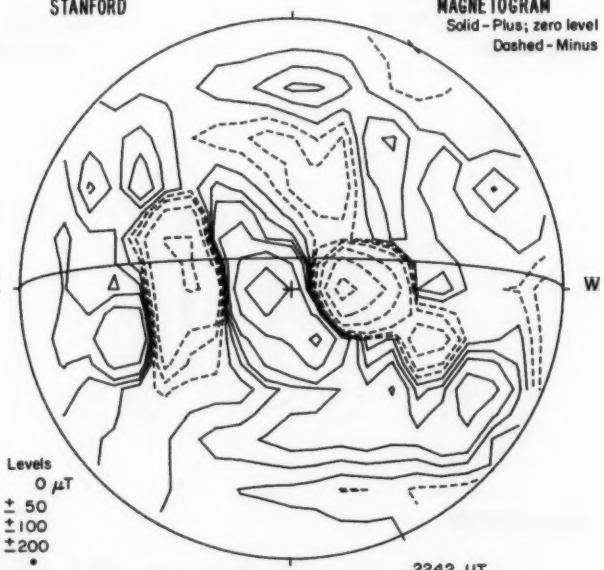
NO DATA W

Sp

STANFORD Np MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



Sp

2242 UT

FEBRUARY 11, 1982 (P= -15.93, B_o= -6.64, L_o= 197.02)

SACRAMENTO PEAK Np CORONA 5303 Å

E NO DATA W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

Sp

Np

KITT PEAK MAGNETOGRAM Bright - Plus Dark - Minus

MT. WILSON MAGNETOGRAM Solid - Plus Dotted - Minus

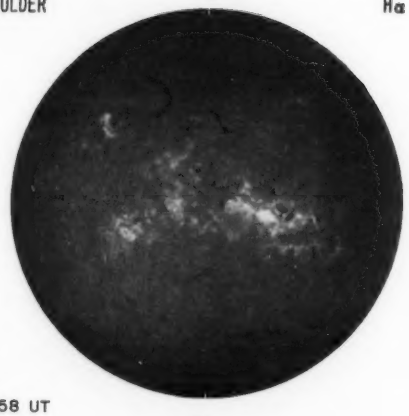
DELTAY =
DELTAX =

E NO DATA W E NO DATA W

Levels
± 5
± 10
± 20
± 40
± 80

Sp Sp

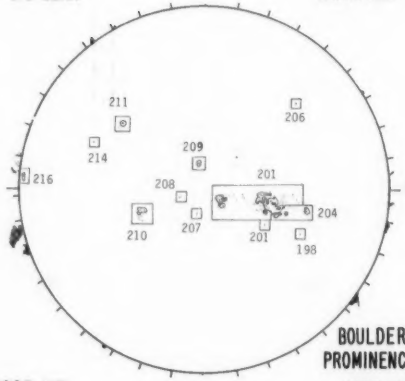
BOULDER Np Hα



E W

1958 UT Sp

BIG BEAR Np SUNSPOTS



E W E W

2025 UT Sp

BIG BEAR Np ACTIVE REGIONS

NO DATA

E W

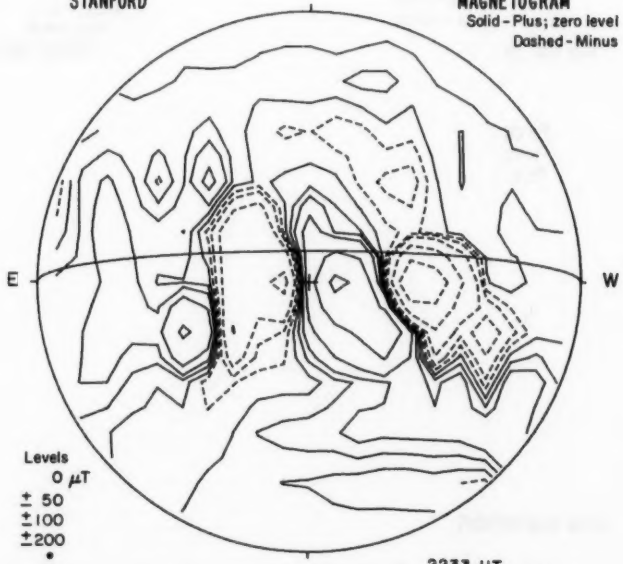
BOULDER PROMINENCES

1958 UT Sp

STANFORD Np MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



Sp 2233 UT

FEBRUARY 12, 1982 (P= -16.29, B_o=-6.69, L_o= 183.86)

SACRAMENTO PEAK Np CORONA 5303 Å

E NO DATA W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

Sp

Np

KITT PEAK MAGNETOGRAM Bright - Plus Dark - Minus

MT. WILSON MAGNETOGRAM Solid-Plus Dotted-Minus

DELTAY =
DELTAX =

E NO DATA W

E NO DATA W

Levels
± 5
± ± 10
± ± ± 20
± ± ± ± 40
± ± ± ± ± 80

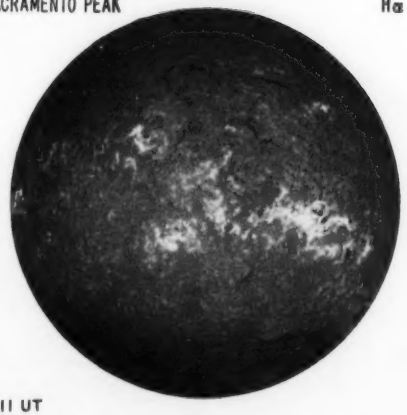
Sp

Sp

SACRAMENTO PEAK

Np

Hα



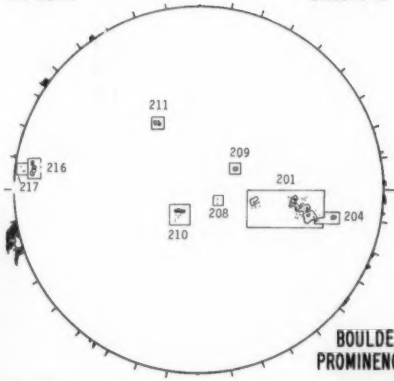
E W

1511 UT

Sp

BIG BEAR

Np



E W E

2345 UT

Sp

SUNSPOTS

BIG BEAR

Np

BOULDER PROMINENCES

1637 UT

Sp

ACTIVE REGIONS

NO DATA

E W

Sp

STANFORD

Np

E NO DATA W

Sp

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

Levels

0 μT

± 50

±100

±200

•

•

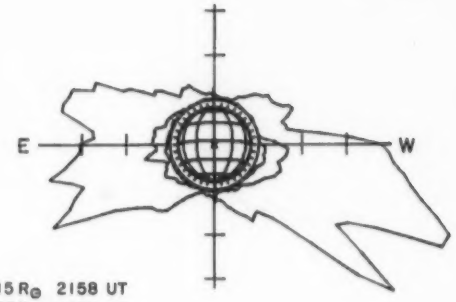
•

73

Feb 82

FEBRUARY 13, 1982 (P= -16.64, B_o=-6.74, L_o=170.69)

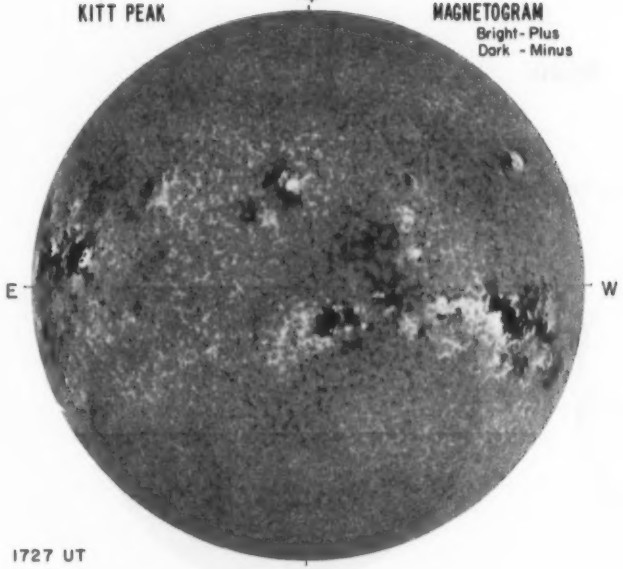
SACRAMENTO PEAK Np CORONA
5303 Å



1.15 $R_\odot$ 2158 UT
1.35 $R_\odot$ 2206 UT
1.55 $R_\odot$ 2216 UT

Sp

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



1727 UT

Np

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

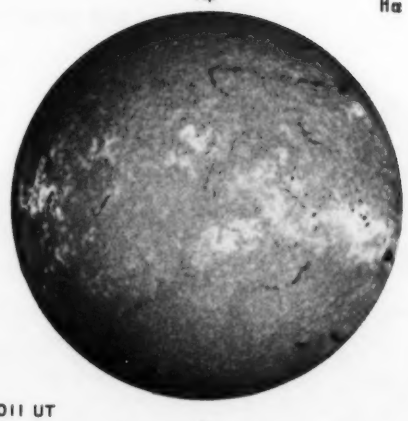
DELTAY =
DELTAX =

E NO DATA W

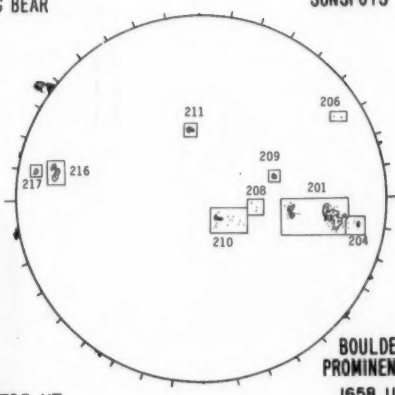
Levels
± 5
± ± 10
± ± ± 20
± ± ± ± 40
± ± ± ± ± 80

Sp

13



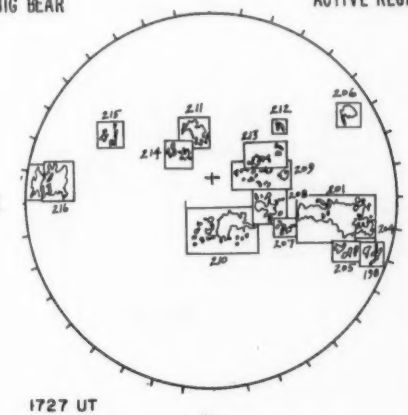
2011 UT



1705 UT

BOULDER PROMINENCES

1658 UT



1727 UT

FAIR	WM

01- 6500-3.5
04- 0900-3.0
05- 0700-2.5
06- 1200-3.5
08- 1100-2.5
10- 2700-3.5
11- 1400-3.0
16- 3800-3.0
17- 2500-2.5

STANFORD

Np

MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus

E

NO DATA

W

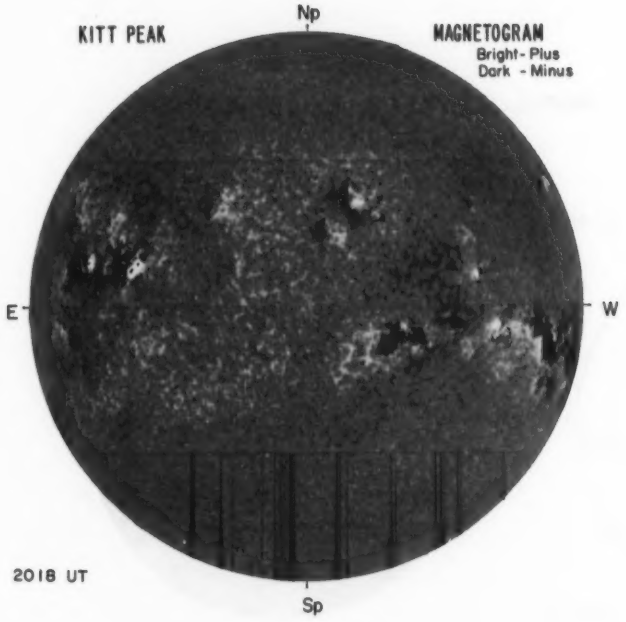
Levels
0 μT
± 50
±100
±200
•
•
•

Sp

FEBRUARY 14, 1982 (P= -16.99, B_o= -6.79, L_o= 157.52)

KITT PEAK

MAGNETOGRAM
Bright - Plus
Dark - Minus



2018 UT

SACRAMENTO PEAK

Np

CORONA
5303 Å

E NO DATA W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

Sp

Np

MT. WILSON

DELTAY =
DELTAX =

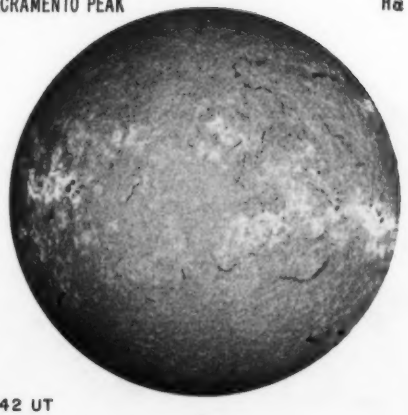
MAGNETOGRAM
Solid-Plus
Dotted-Minus

E NO DATA W

Levels
± 5
± 10
± 20
± 40
± 60

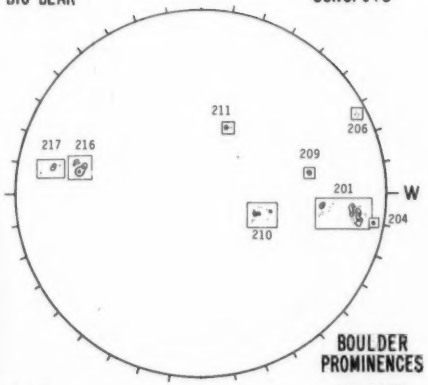
Sp

SACRAMENTO PEAK Hα



1442 UT

BIG BEAR SUNSPOTS

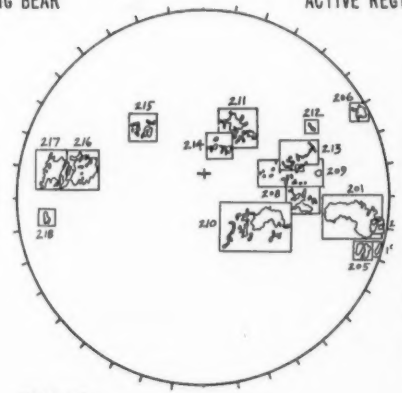


1715 UT

BOULDER PROMINENCES

NO DATA

BIG BEAR ACTIVE REGIONS



2018 UT

POOR	WM

01- 6500-3.5
04- 0800-3.0
05- 0800-2.5
06- 1100-3.5
10- 2800-3.5
11- 1500-3.0
16- 4300-3.0
17- 2700-2.5

STANFORD

MAGNETOGRAM

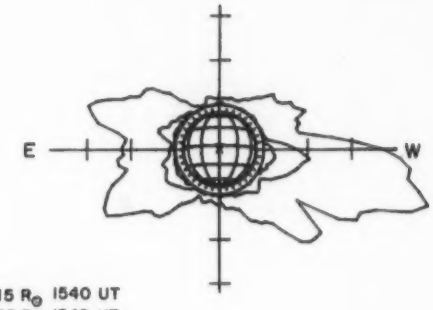
Solid - Plus; zero level
Dashed - Minus

Levels
0 μT
± 50
±100
±200

77
Feb 82

FEBRUARY 15, 1982 (P=-17.33, B_o=-6.83, L_o=144.35)

SACRAMENTO PEAK Np CORONA
5303 Å

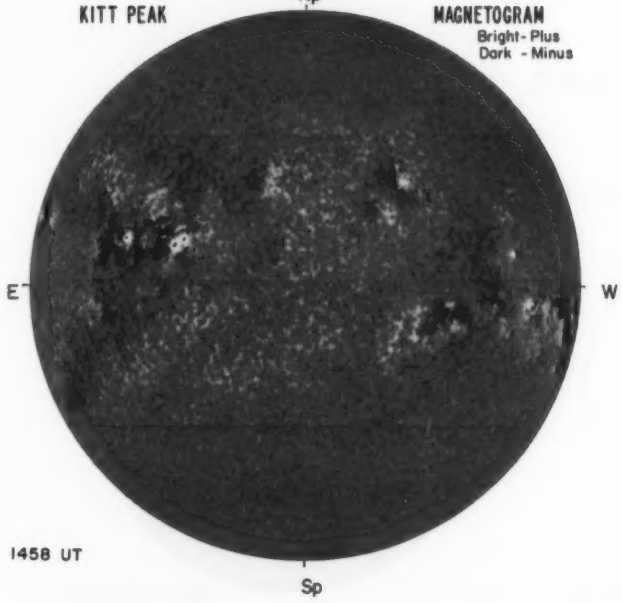


1.15 $R_\odot$ 1540 UT
1.35 $R_\odot$ 1549 UT
1.55 $R_\odot$ 1600 UT

Sp

Np

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



MT. WILSON MAGNETOGRAM
Solid - Plus
Dotted - Minus

DELTAY =
DELTAX =

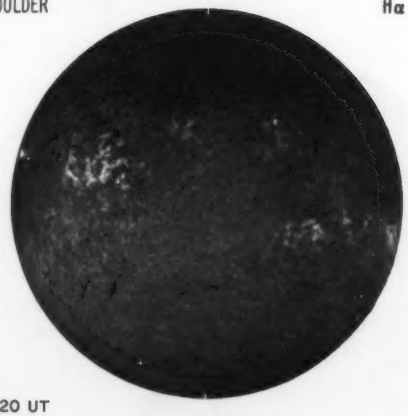
E NO DATA W

Levels
± 5
± 10
± 20
± 40
± 80

Sp

15

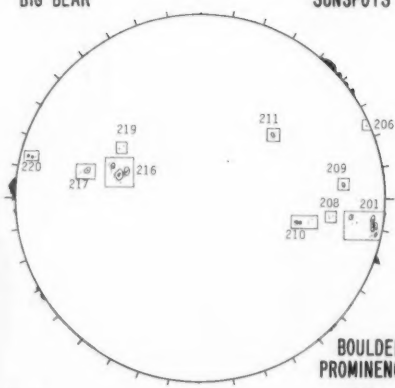
BOULDER Np Hα



E W

1620 UT Sp

BIG BEAR Np SUNSPOTS



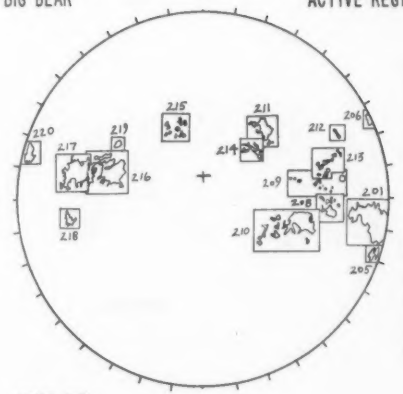
E W

1915 UT Sp

BOULDER PROMINENCES

1620 UT

BIG BEAR Np ACTIVE REGIONS



E W

1458 UT Sp

FAIR | WM

01- 6800-3.5
10- 2500-3.5
11- 1200-3.5
16- 3800-3.0
17- 2700-2.5
20- 1500-3.5

STANFORD Np

MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus

E NO DATA W

Levels
0 μT
± 50
±100
±200
•
•
•

Sp

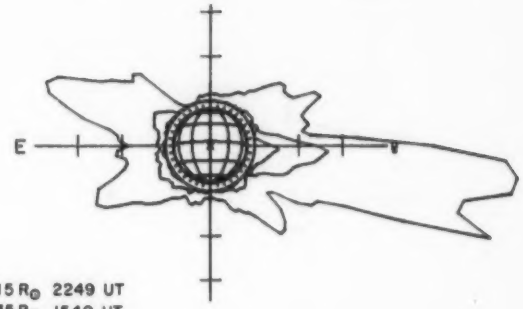
79
Feb 82

FEBRUARY 16, 1982 (P= -17.66, B_o=-6.87, L_o= 131.19)

SACRAMENTO PEAK

Np

CORONA
5303 Å



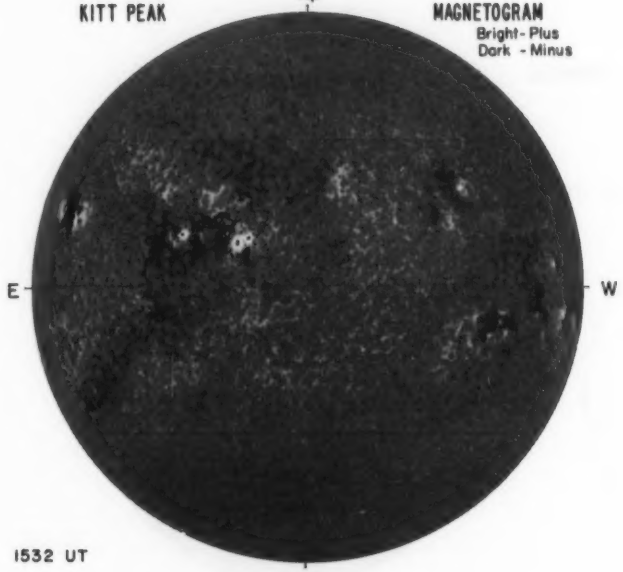
1.15 $R_\odot$ 2249 UT
1.35 $R_\odot$ 1540 UT
1.55 $R_\odot$ 1550 UT

Sp

KITT PEAK

Np

MAGNETOGRAM
Bright - Plus
Dark - Minus



1532 UT

Sp

Np

MT. WILSON

MAGNETOGRAM
Solid - Plus
Dotted - Minus

DELTAY =
DELTAX =

E

NO DATA

W

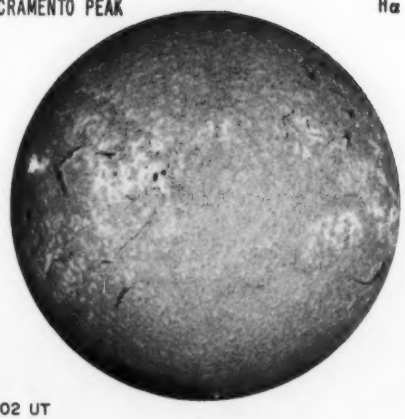
Levels
± 5
± 10
± 20
± 40
± 80

Sp

SACRAMENTO PEAK

Np

Hα



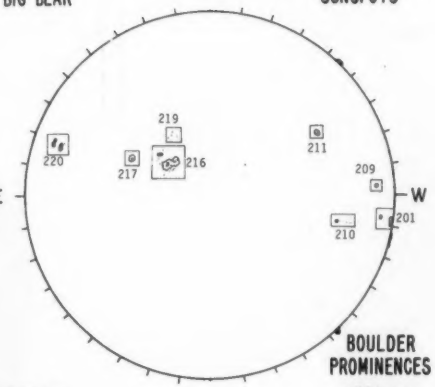
E W

Sp

1502 UT

BIG BEAR

Np



E W

Sp

1825 UT

SUNSPOTS

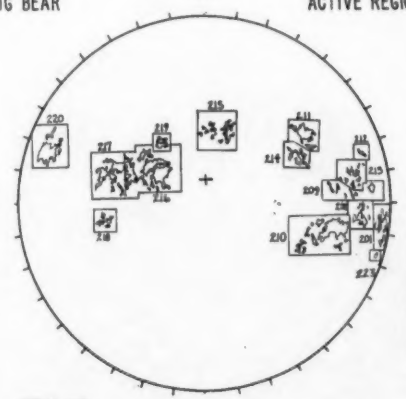
BOULDER PROMINENCES

1529 UT

BIG BEAR

Np

ACTIVE REGIONS



E W

Sp

1532 UT

GOOD	WHI

01- 2200-2.5
10- 2500-3.0
11- 1200-2.5
16- 3900-3.5
17- 1900-3.0
19- 0300-2.5
20- 2300-3.5

STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

E

NO DATA

W

Levels

0 μT

± 50

±100

±200

•

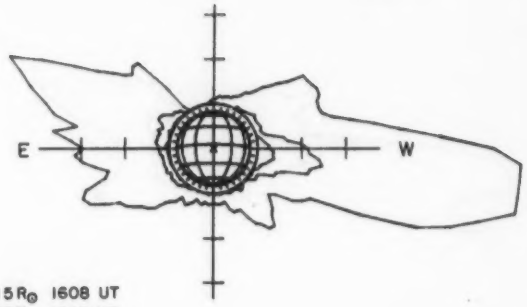
•

•

Sp

FEBRUARY 17, 1982 (P= -17.99, B_o=-6.91, L_o= 118.02)

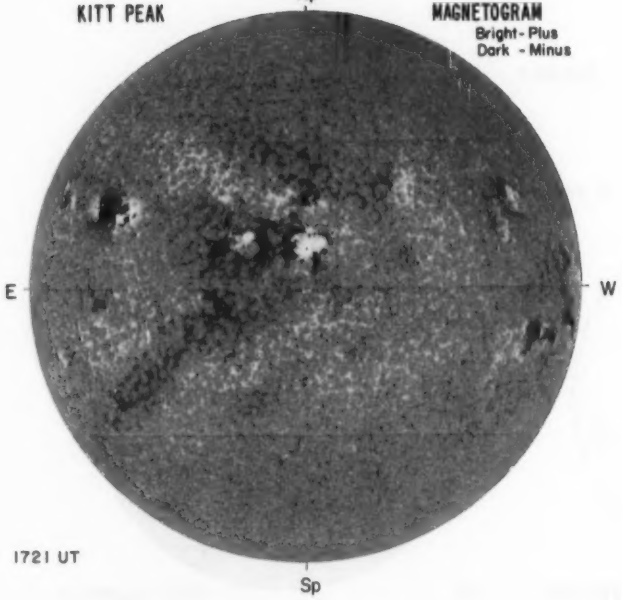
SACRAMENTO PEAK Np CORONA
5303 Å



1.15 $R_\odot$ 1608 UT
1.35 $R_\odot$ 1547 UT
1.55 $R_\odot$ 1558 UT

Sp

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus

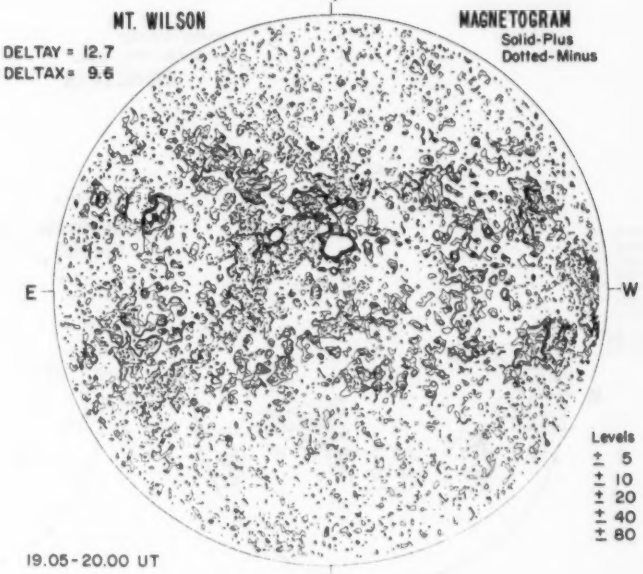


1721 UT

Sp

MT. WILSON Np MAGNETOGRAM
Solid - Plus
Dotted - Minus

DELTAY = 12.7
DELTAX = 9.6



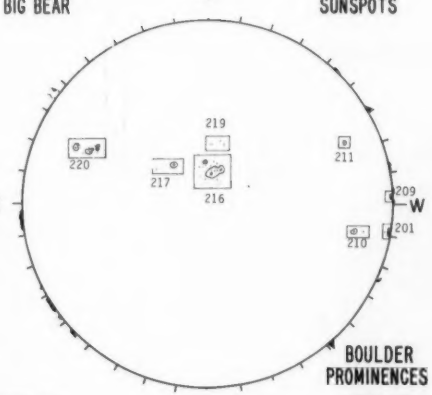
19.05 - 20.00 UT

Sp

SACRAMENTO PEAK Hα

1501 UT

BIG BEAR SUNSPOTS

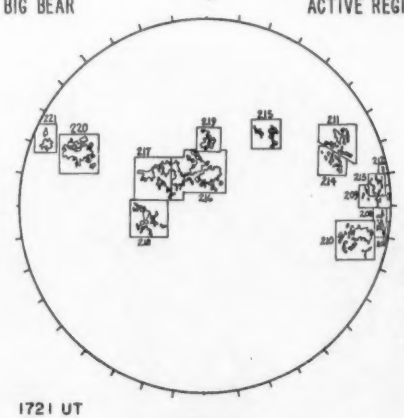


2120 UT

BOULDER PROMINENCES

1535 UT

BIG BEAR ACTIVE REGIONS



1721 UT

FAIR | WM

10- 2700-3.0
11- 1000-2.5
16- 3000-3.5
17- 1300-2.5
20- 2800-4.0
21- 1100-2.5

STANFORD

MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus

Levels
0 μT
± 50
±100
±200
• • •

FEBRUARY 18, 1982 (P= -18.32, B_o=-6.95, L_o= 104.85)

SACRAMENTO PEAK Np CORONA 5303 Å

E NO DATA W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

KITT PEAK Np MAGNETOGRAM Bright - Plus Dark - Minus

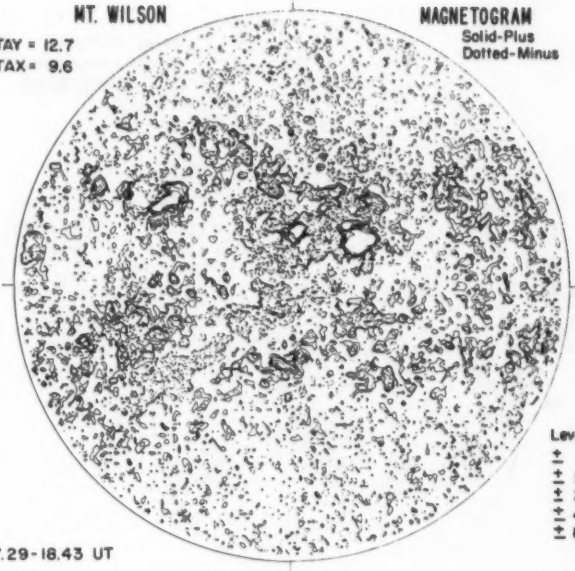
E NO DATA W

Sp

Sp
Np

MT. WILSON MAGNETOGRAM Solid-Plus Dotted-Minus

DELTAY = 12.7
DELTAX = 9.6



E W

Levels
± 5
± 10
± 20
± 40
± 80

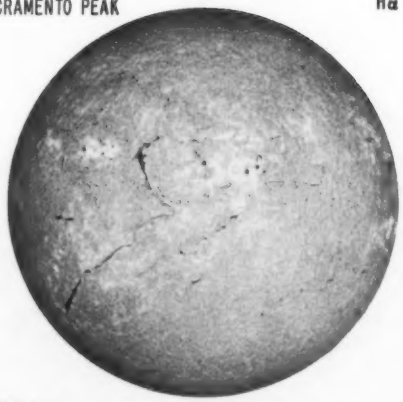
17.29-18.43 UT

Sp

SACRAMENTO PEAK

Np

Hα



E

W E

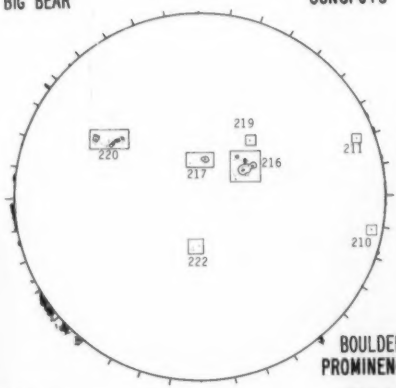
1620 UT

Sp

BIG BEAR

Np

SUNSPOTS



W E

1850 UT

Sp

BIG BEAR

Np

BOULDER PROMINENCES

1714 UT

Sp

ACTIVE REGIONS

NO DATA

W

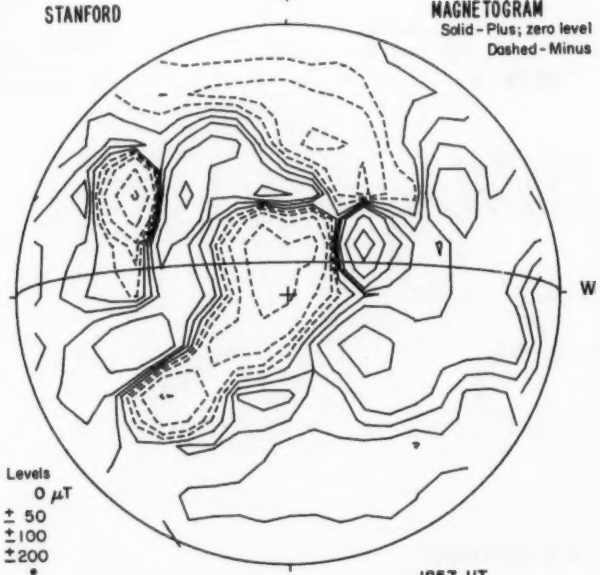
STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E

W

Levels

0 μT

± 50

±100

±200

1857 UT

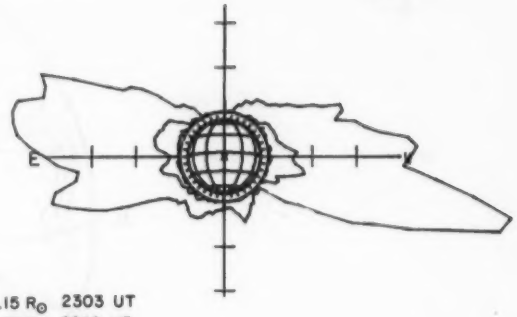
Sp

FEBRUARY 19, 1982 (P= -18.64, B_o= -6.99, L_o= 91.68)

SACRAMENTO PEAK

Np

CORONA
5303 Å



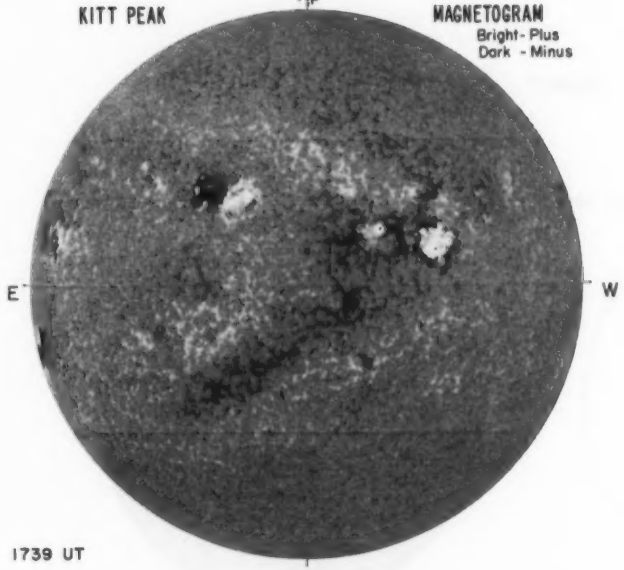
1.15 $R_\odot$ 2303 UT
1.35 $R_\odot$ 2242 UT
1.55 $R_\odot$ 2252 UT

Sp

KITT PEAK

Np

MAGNETOGRAM
Bright - Plus
Dark - Minus



1739 UT

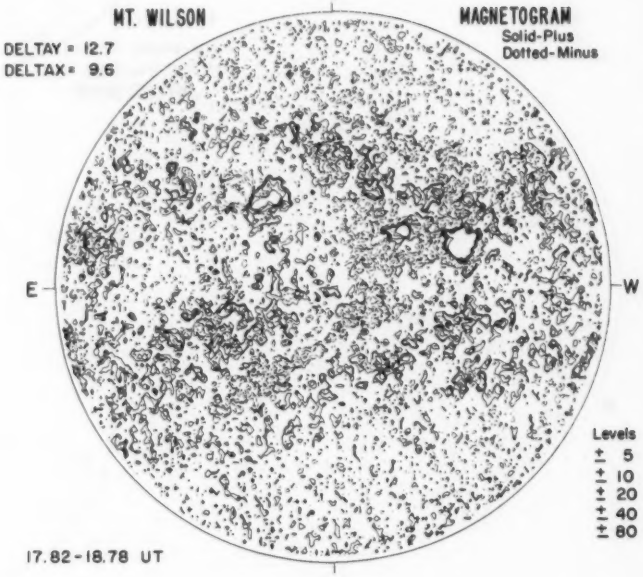
Sp

MT. WILSON

Np

MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.7
DELTAX = 9.6



Levels
± 5
± 10
± 20
± 40
± 80

17.82-18.78 UT

Sp

SACRAMENTO PEAK

Np

Hα

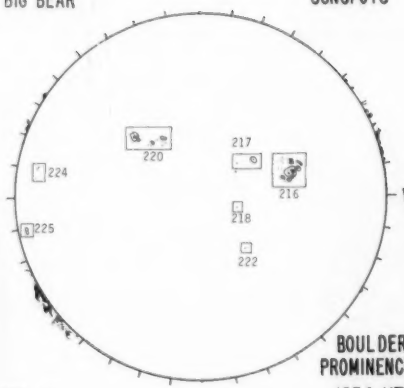
E

NO DATA

Sp

BIG BEAR

Np



W E W

1955 UT

Sp

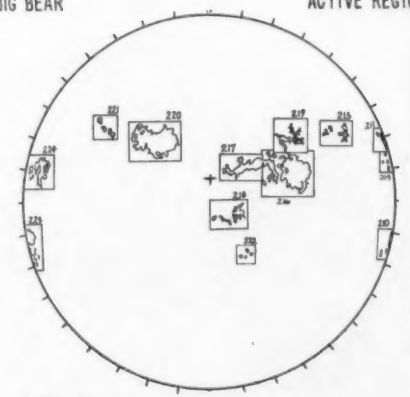
SUNSPOTS

BOULDER PROMINENCES

1634 UT

BIG BEAR

Np



W E W

1739 UT

Sp

ACTIVE REGIONS

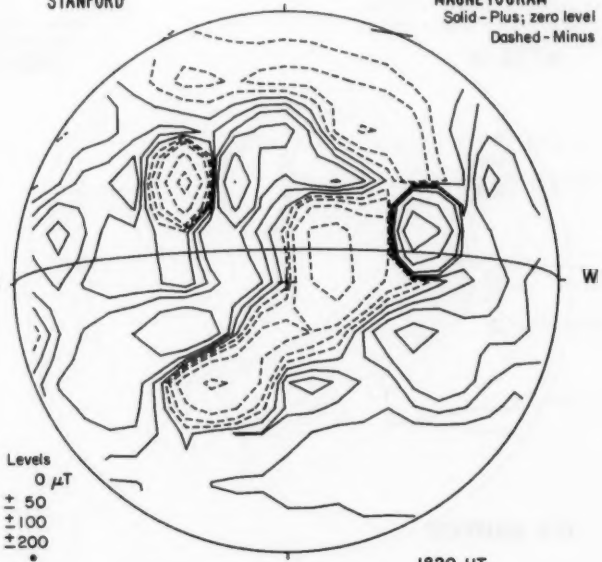
FAIR	WM

16- 4000-4.0
17- 1300-2.5
20- 3500-3.5
24- 2500-2.5
25- 2500-2.5

STANFORD

Np

MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus



E W

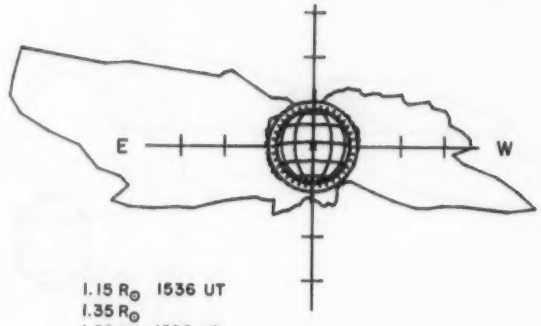
Levels
0 μT
± 50
±100
±200
• • •

1820 UT

Sp

FEBRUARY 20, 1982 (P= -18.95, B_o = -7.02, L_o = 78.51)

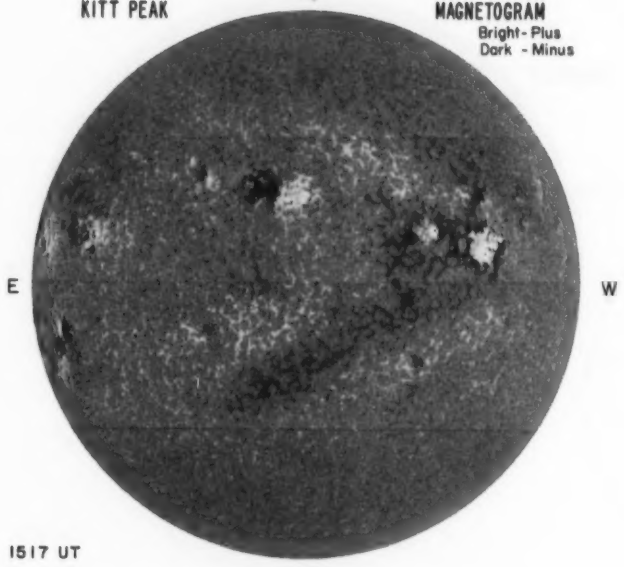
SACRAMENTO PEAK Np CORONA
5303 Å



1.15 $R_\odot$ 1536 UT
1.35 $R_\odot$
1.55 $R_\odot$ 1525 UT

Sp

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



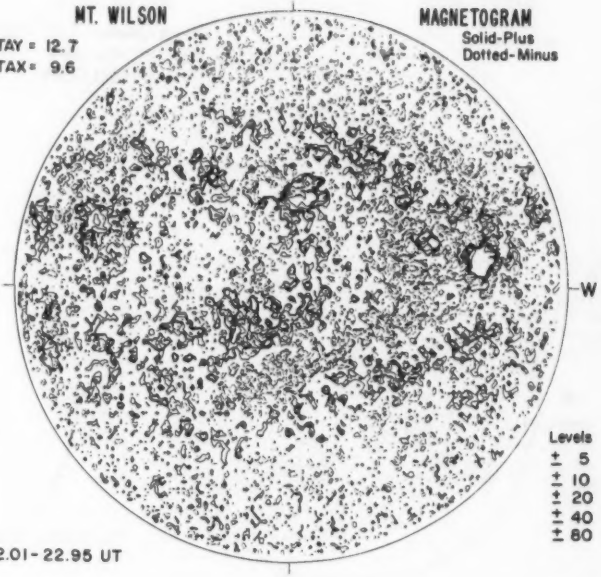
1517 UT

Sp

Np

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

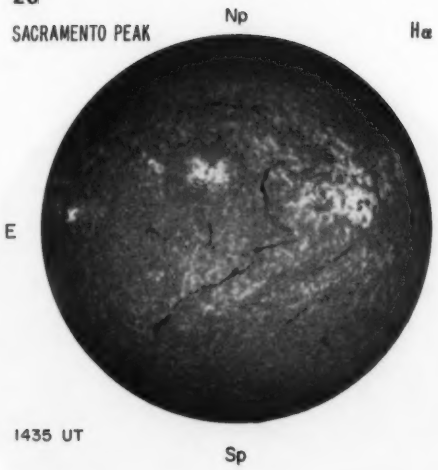
DELTAY = 12.7
DELTAX = 9.6

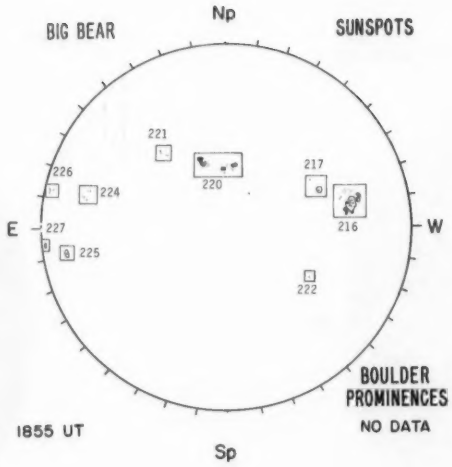


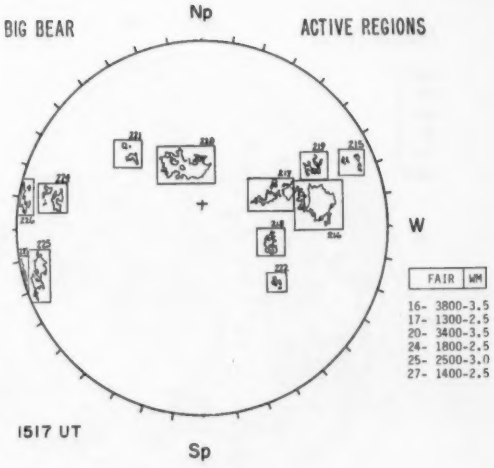
22.01 - 22.95 UT

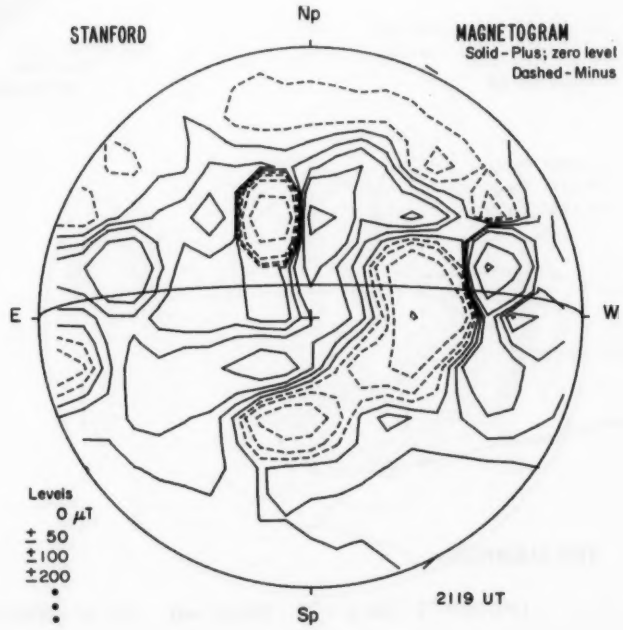
Sp

20


SACRAMENTO PEAK
Np
Hα
E
W
1435 UT
Sp

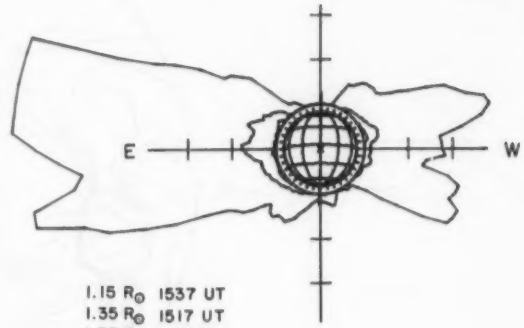

BIG BEAR
Np
SUNSPOTS
221
226
224
220
217
227
225
216
222
E
W
BOULDER
PROMINENCES
NO DATA
1855 UT
Sp


BIG BEAR
Np
ACTIVE REGIONS
E
W
FAIR
16- 3800-3.5
17- 1300-2.5
20- 3400-3.5
24- 1800-2.5
25- 2500-3.0
27- 1400-2.5
1517 UT
Sp


STANFORD
Np
MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus
E
W
Levels
0 μT
± 50
±100
±200
2119 UT
Sp

FEBRUARY 21, 1982 (P= -19.25, B_o=-7.05, L_o= 65.34)

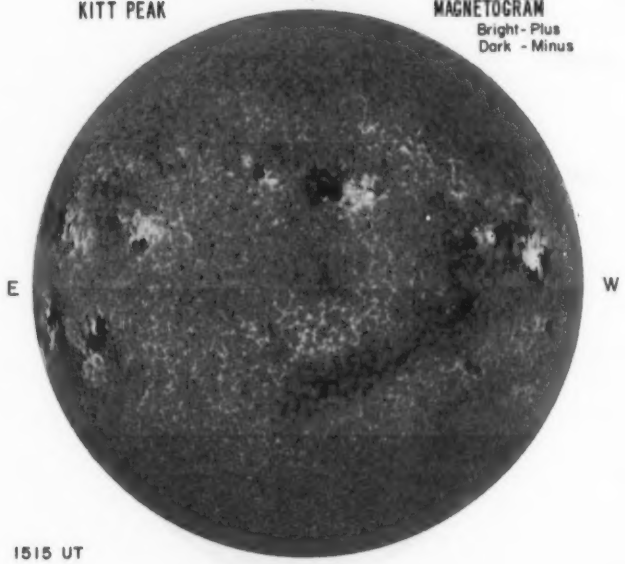
SACRAMENTO PEAK Np CORONA
5303 Å



1.15 $R_\odot$ 1537 UT
1.35 $R_\odot$ 1517 UT
1.55 $R_\odot$ 1526 UT

Sp

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



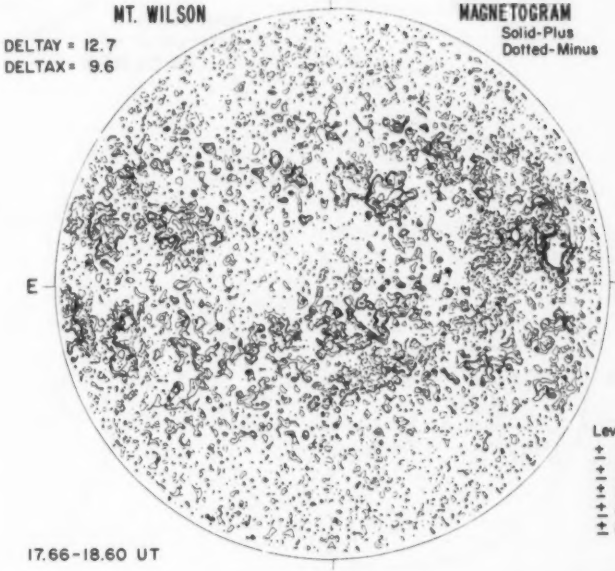
1515 UT

Sp

Np

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.7
DELTAX = 9.6

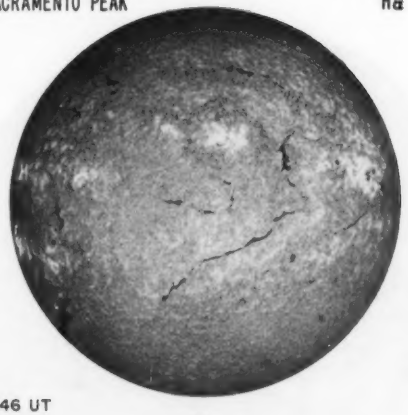


17.66-18.60 UT

Sp

21

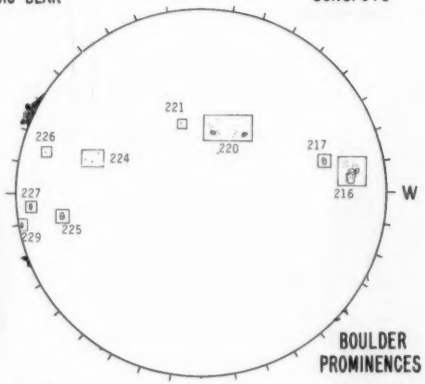
SACRAMENTO PEAK Np Hα



E W

1546 UT Sp

BIG BEAR Np SUNSPOTS



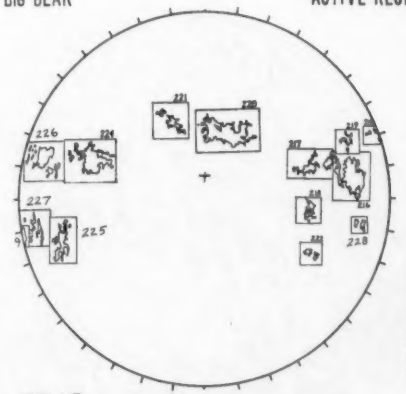
E W

1715 UT Sp

BOULDER PROMINENCES

1530 UT

BIG BEAR Np ACTIVE REGIONS



E W

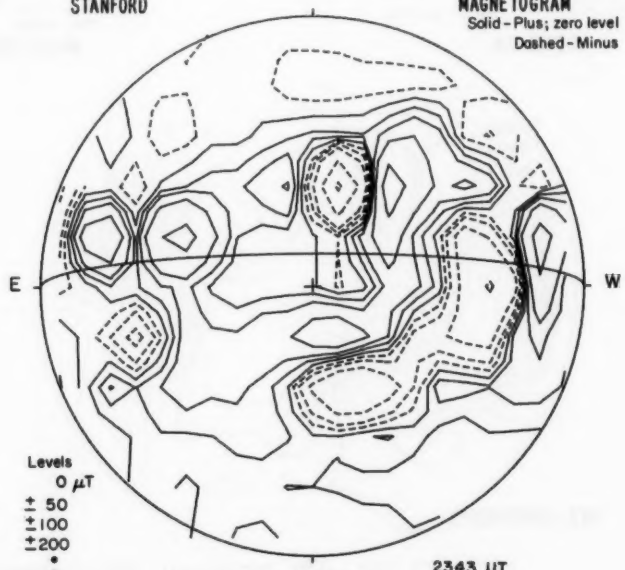
1515 UT Sp

	FAIR	WM
16-	3800	3.5
17-	1400	2.5
20-	3500	3.5
21-	0500	2.5
24-	1800	2.5
25-	1800	2.5
26-	1500	2.5
27-	1300	2.5

STANFORD Np MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E W

Levels

0 μT

± 50

±100

±200

2343 UT Sp

FEBRUARY 22, 1982 (P=-19.55, B_o=-7.08, L_o=52.17)

SACRAMENTO PEAK Np CORONA
5303 Å

E NO DATA W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

KITT PEAK Np MAGNETOGRAM
Bright-Plus
Dark - Minus

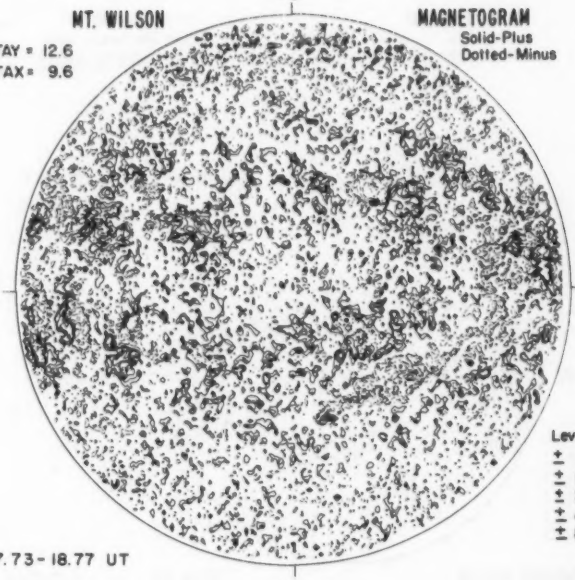
E W

1735 UT

Sp

Sp Np MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.6
DELTAX = 9.6



E W

Levels
± 5
± 10
± 20
± 40
± 80

17.73-18.77 UT

Sp

22

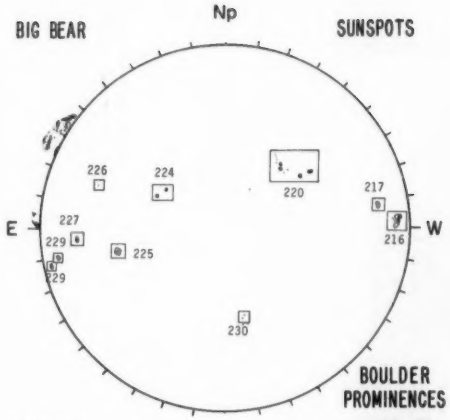
SACRAMENTO PEAK

Np

E NO DATA W

Sp

Hα BIG BEAR



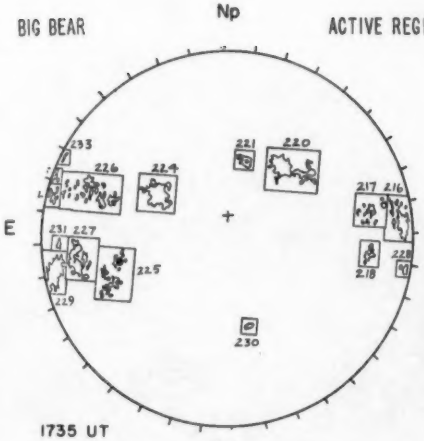
1715 UT

SUNSPOTS BIG BEAR

BOULDER PROMINENCES

1655 UT

ACTIVE REGIONS



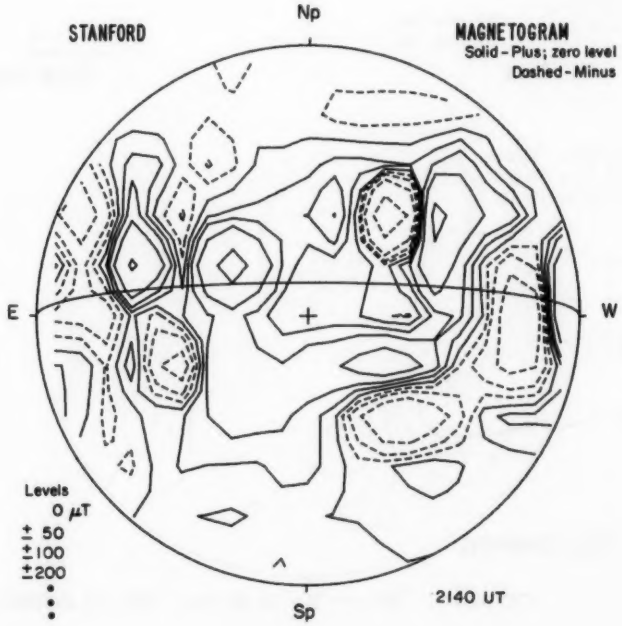
1735 UT

FAIR | WM

16- 3500-3.0
17- 1300-2.5
18- 0500-2.5
20- 3500-3.5
24- 2000-4.0
25- 1100-2.5
26- 1500-2.5
27- 1800-2.5
29- 4800-2.5

STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus

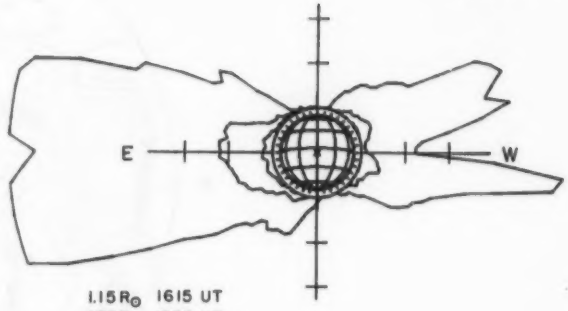


2140 UT

93
Feb 82

FEBRUARY 23, 1982 (P= -19.85, B_o = -7.10, L_o = 39.00)

SACRAMENTO PEAK Np CORONA
5303 Å



1.15 $R_\odot$ 1615 UT
1.35 $R_\odot$ 1555 UT
1.55 $R_\odot$ 1604 UT

Sp

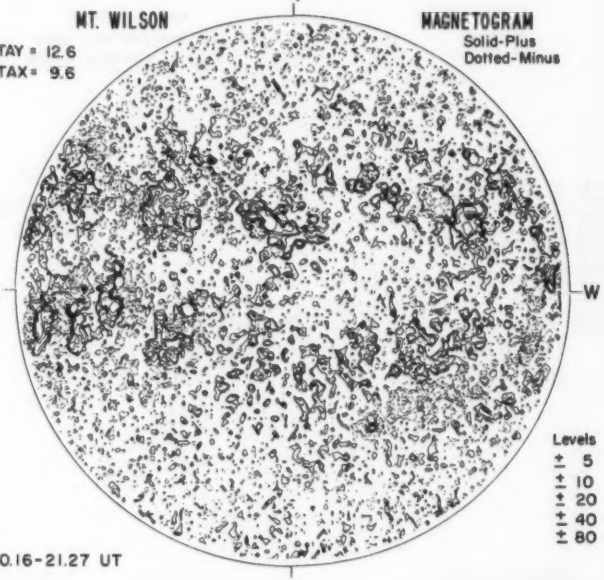
KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus

E NO DATA W

Sp

Np MT. WILSON MAGNETOGRAM
Solid - Plus
Dotted - Minus

DELTAY = 12.6
DELTAX = 9.6



20.16 - 21.27 UT

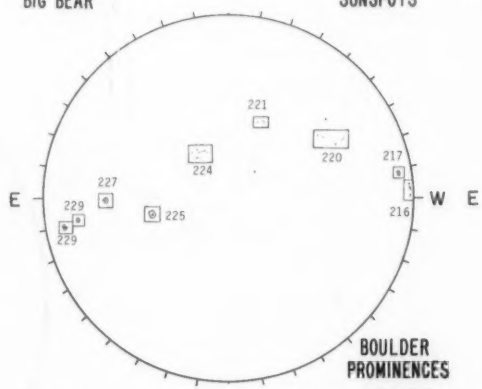
Sp

23

SACRAMENTO PEAK Np Hα

1427 UT

BIG BEAR Np SUNSPOTS



1745 UT

BOULDER PROMINENCES

NO DATA

BIG BEAR Np ACTIVE REGIONS

NO DATA

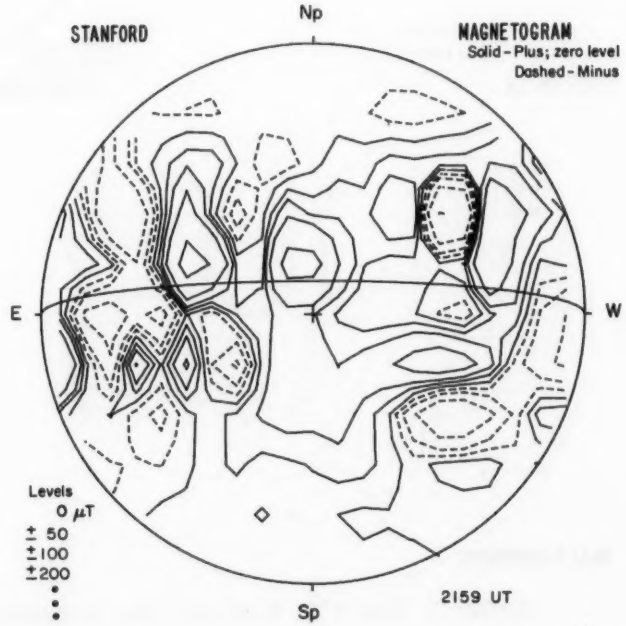
W

Sp

STANFORD Np MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



2159 UT

FEBRUARY 24, 1982 (P= -20.14, B_o= -7.13, L_o= 25.83)

SACRAMENTO PEAK Np CORONA 5303 Å

E NO DATA W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

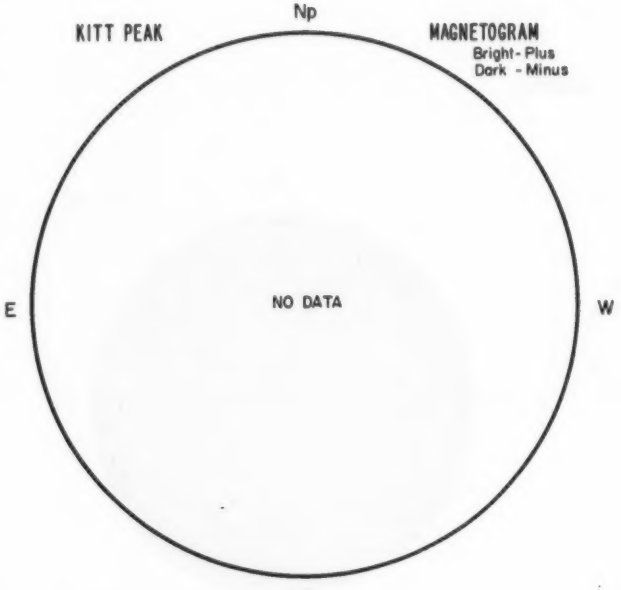
Sp

Np

KITT PEAK MAGNETOGRAM Bright - Plus Dark - Minus

MT. WILSON MAGNETOGRAM Solid - Plus Dotted - Minus

DELTAY =
DELTAX =



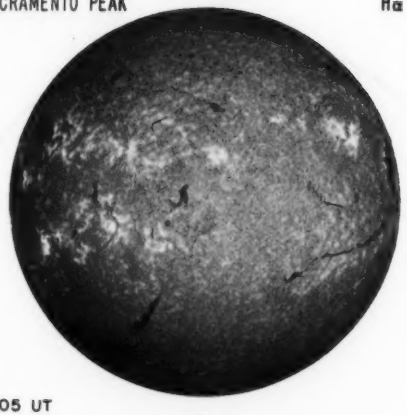
E NO DATA W

Levels
± 5
± 10
± 20
± 40
± 80

Sp

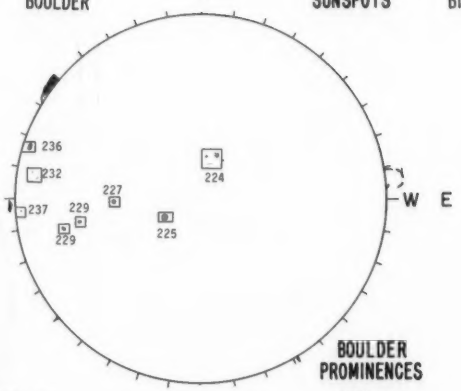
24

SACRAMENTO PEAK Hα



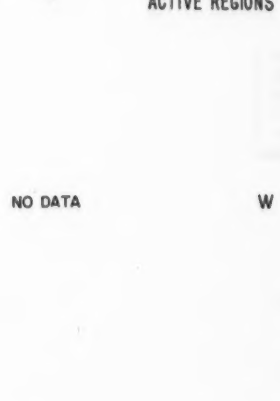
1505 UT

BOULDER SUNSPOTS



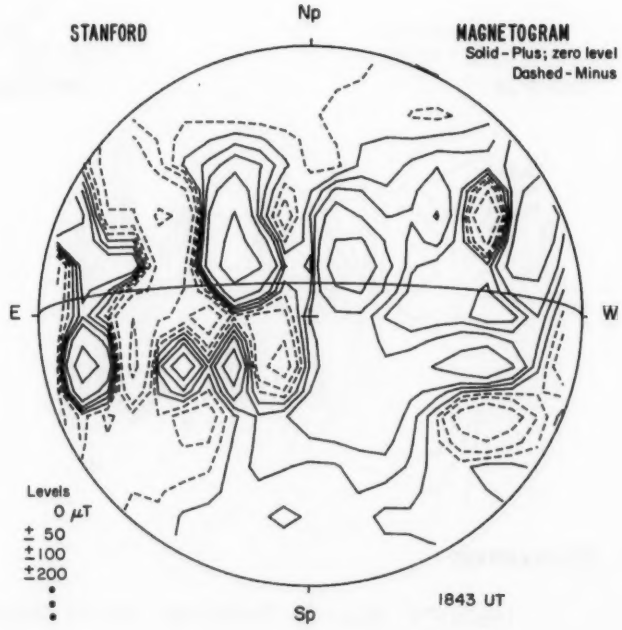
1520 UT 1522 UT

BIG BEAR ACTIVE REGIONS



STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus



1843 UT

97
Feb 82

FEBRUARY 25, 1982 (P=-20.42, B_o=-7.15, L_o=12.66)

SACRAMENTO PEAK Np CORONA 5303 Å

E NO DATA W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

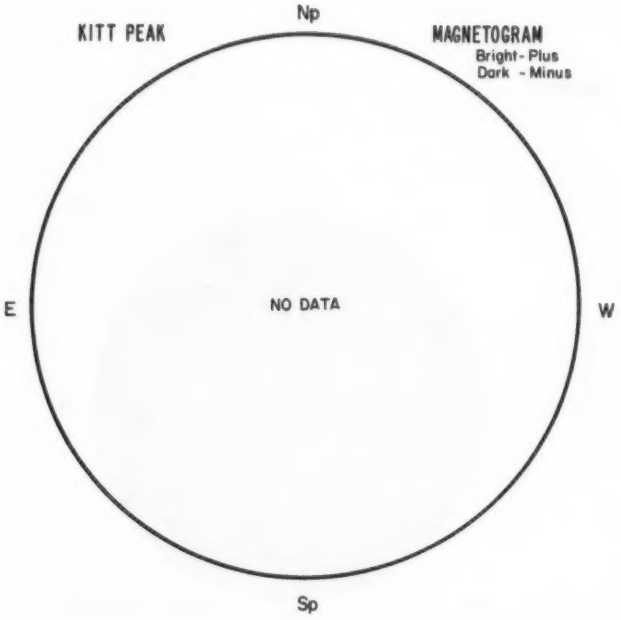
Sp

Np

KITT PEAK MAGNETOGRAM
Bright - Plus
Dark - Minus

MT. WILSON MAGNETOGRAM
Solid - Plus
Dotted - Minus

DELTAY =
DELTAX =



E NO DATA W

Levels
± 5
± 10
± 20
± 40
± 80

Sp

25

SACRAMENTO PEAK

Np

E NO DATA W

Sp

Hα

BIG BEAR

Np

W E

240 236 238 232 226 226 224 221 227 237 229 229 225

1815 UT

Sp

SUNSPOTS

BIG BEAR

Np

W E

BOULDER PROMINENCES

1640 UT

Sp

ACTIVE REGIONS

Np

NO DATA W

Sp

STANFORD

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

Np

E W

Levels

0 μT

± 50

±100

±200

1847 UT

Sp

FEBRUARY 26, 1982 (P= -20.70, B_o=-7.17, L_o=359.49)

SACRAMENTO PEAK Np CORONA 5303 Å

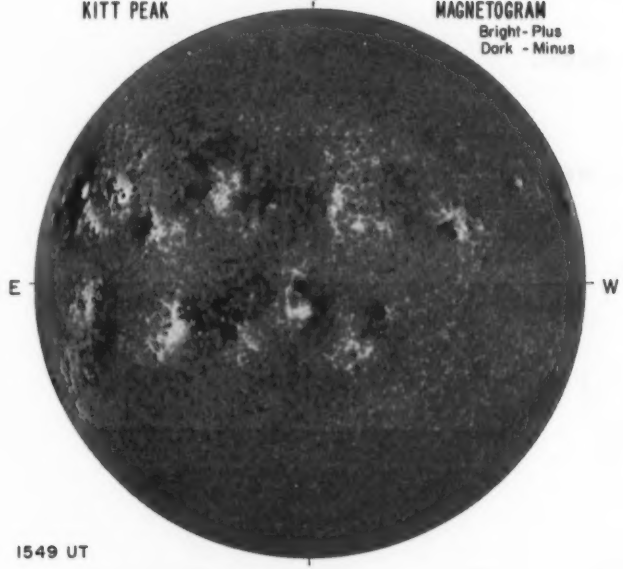
E NO DATA W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

Sp

Np

KITT PEAK MAGNETOGRAM
Bright - Plus
Dark - Minus



1549 UT

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY =
DELTAX =

E NO DATA W

Levels
± 5
± 10
± 20
± 40
± 80

Sp

Sp

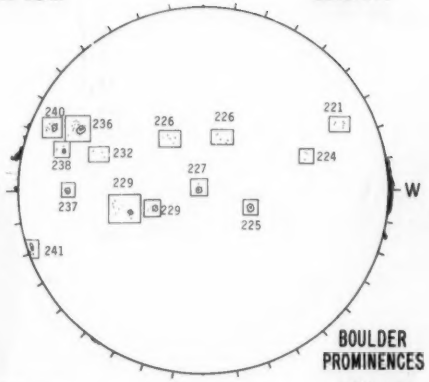
26

BOULDER Np Hα

E W

1604 UT Sp

BIG BEAR Np SUNSPOTS



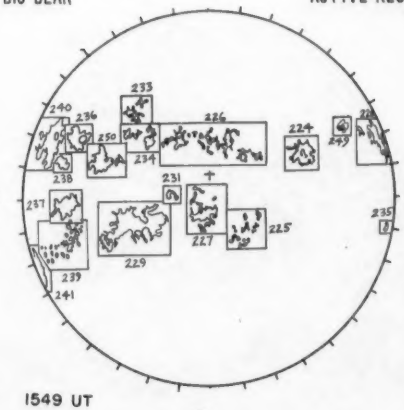
E W

1710 UT Sp

BOULDER PROMINENCES

1604 UT

BIG BEAR Np ACTIVE REGIONS



E W

1549 UT Sp

FAIR	WM
20-	3800-3.0
24-	1800-3.5
25-	0700-2.5
26-	1500-2.5
27-	1700-3.0
29-	4800-3.0
35-	0300-2.5
36-	1400-3.0
37-	1500-3.0
38-	0700-2.5
40-	4700-3.5
49-	0400-3.0
50-	1800-2.5

STANFORD Np

MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus

E NO DATA W

Levels
0 μT
± 50
±100
±200
•
•

Sp

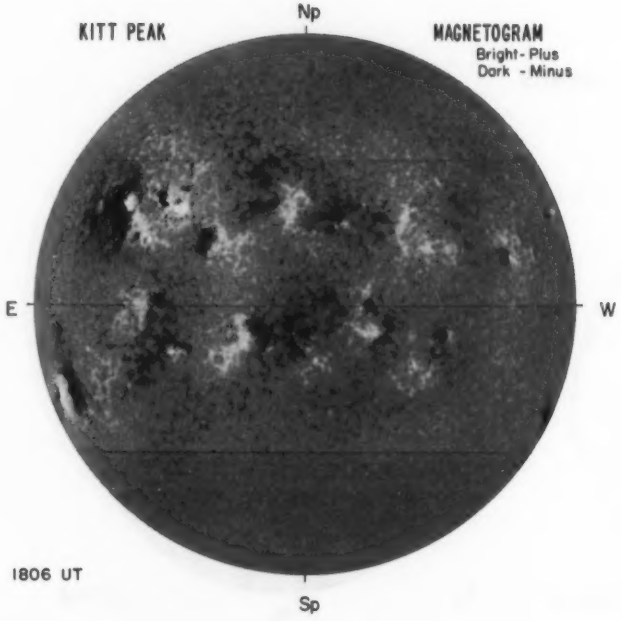
FEBRUARY 27, 1982 (P= -20.97, B_o= -7.19, L_o= 346.32)

SACRAMENTO PEAK Np CORONA 5303 Å

E NO DATA W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

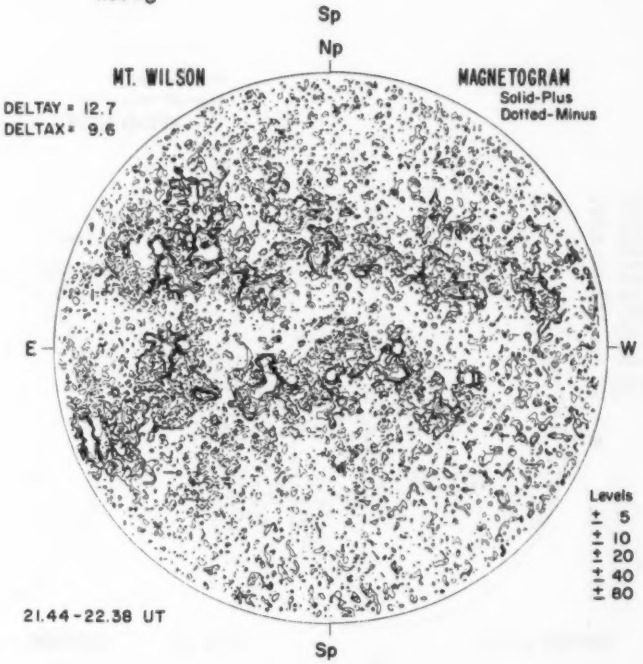
KITT PEAK MAGNETOGRAM
Bright - Plus
Dark - Minus



1806 UT

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

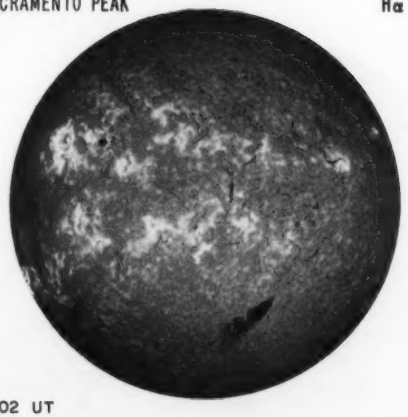
DELTAY = 12.7
DELTAX = 9.6



21.44 - 22.38 UT

27

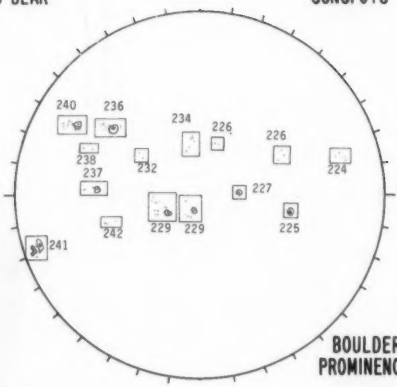
SACRAMENTO PEAK Np Hα



E W

1502 UT Sp

BIG BEAR Np SUNSPOTS

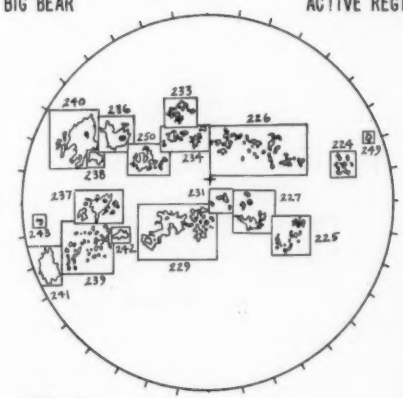


E W

BOULDER PROMINENCES

1920 UT NO DATA Sp

BIG BEAR Np ACTIVE REGIONS



E W

POOR	WM

24- 0700-3.0
27- 0900-2.5
29- 4000-3.0
36- 2000-2.5
37- 1700-3.5
38- 0700-2.5
40- 5000-3.5
41- 4300-3.0
49- 0200-2.5
50- 1500-2.5

1806 UT Sp

STANFORD Np

MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus

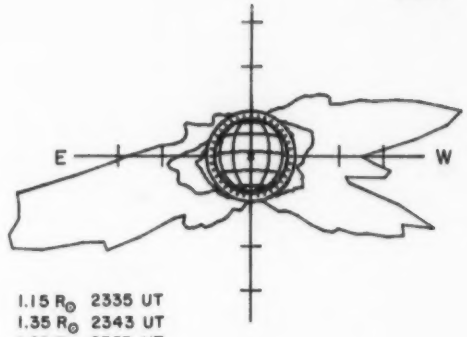
E NO DATA W

Levels
0 μT
± 50
±100
±200
•
•
•

Sp

FEBRUARY 28, 1982 (P= -21.23, B_o = -7.20, L_o = 333.15)

SACRAMENTO PEAK Np CORONA
5303 Å

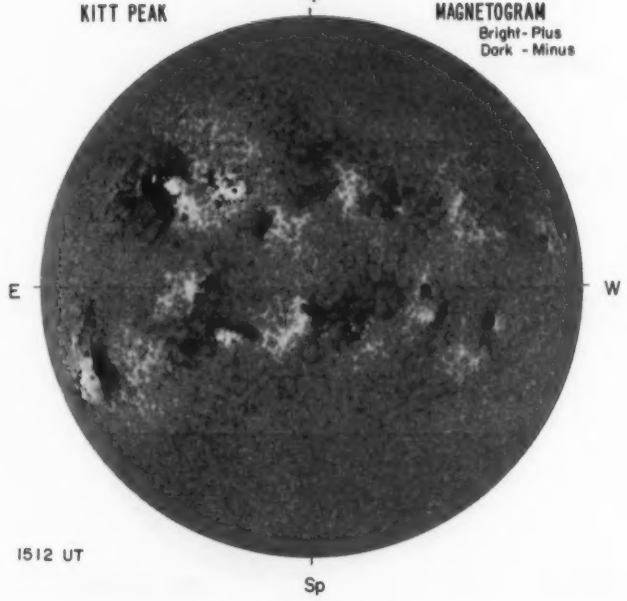


1.15 $R_\odot$ 2335 UT
1.35 $R_\odot$ 2343 UT
1.55 $R_\odot$ 2353 UT

Sp

Np

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



1512 UT

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY =
DELTAX =

E NO DATA W

Levels
± 5
± 10
± 20
± 40
± 80

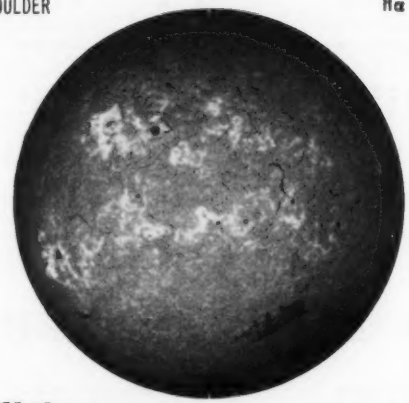
Sp

28

BOULDER

Np

Hα



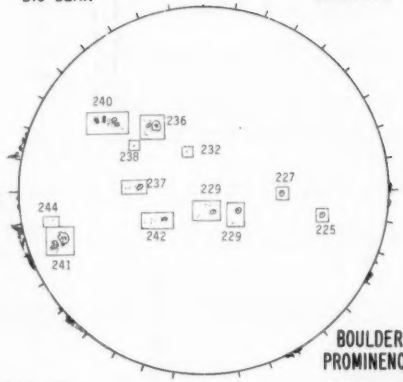
E W

Sp

1635 UT

BIG BEAR

Np



E W

Sp

1745 UT

SUNSPOTS

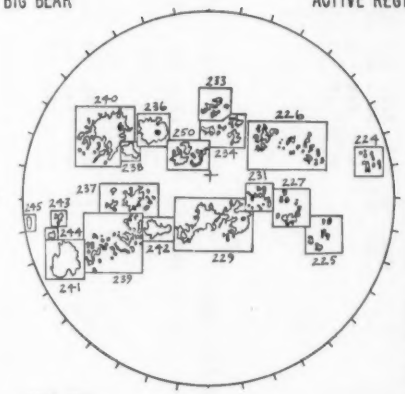
BOULDER PROMINENCES

1635 UT

BIG BEAR

Np

ACTIVE REGIONS



E W

Sp

1512 UT

FAIR	WM

24- 0500-2.5
29- 4000-3.0
36- 2300-2.5
37- 1400-3.0
40- 5000-3.5
41- 4200-3.0
42- 1000-2.5
50- 1000-2.5
44- 0300-2.5
45- 0500-2.5

STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

E

NO DATA

W

Levels

0 μT

± 50

±100

±200

•

•

•

Sp

REGIONS OF SOLAR ACTIVITY

FEBRUARY 1982

HALE REGION 18181 CMP DATE 1.2

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	01	26	18181	S07	E74	325	300	2.0		S12	E78				H	380	6	ESI
82	01	27	18181	S07	E60	326	300	2.5		S09	E58				M	20	3	BXO
82	01	30	18181	S07	E20	326	300	1.5										

HALE REGION 18187 CMP DATE 1.2

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	01	30	18187	N12	E20	326	800	3.5										
82	01	31	18187	N12	E06	327	1400	3.5										
82	02	1	18187	N13	W07	327	1600	3.5										
82	02	2	18187	N13	W20	326	1700	3.0		N10	W24				H	590	34	FKI
82	02	3	18187	N13	W34	327	1900	2.5		N11	W38				H	380	18	EKO
82	02	4	18187							N12	W48				H	210	12	EKO

HALE REGION 18188 CMP DATE 1.2

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	01	30	18188	N08	E20	326	800	3.5										
82	01	31	18188	N08	E06	327	1300	3.5										
82	02	1	18188	N08	W07	327	1300	3.5										
82	02	2	18188	N08	W21	327	1700	3.0										
82	02	3	18188	N08	W34	327	1800	2.5										

HALE REGION 18176 CMP DATE 1.4

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	01	25	18176	S15	E85	327	300	1.5										
82	01	26	18176	S15	E76	323	2800	2.0	22952	S13	E78	321	(AP)	4	H	380	6	ESI
82	01	27	18176	S14	E62	324	2600	3.5	22952	S14	E63	323	(AP)	4	H	590	11	EAI
82	01	29	18176						22952	S14	E36	323	(D)	5				
82	01	30	18176	S14	E22	324	4800	3.5	22952	S14	E24	321	(D)	5				
82	01	31	18176	S14	E10	323	5500	3.5	22952	S14	E10	323	(D)	5				
82	02	1	18176	S14	W04	324	5600	4.0	22952	S13	W03	323	(D)	5				
82	02	1	18176	S14	W04	324	5600	4.0	22966	S16	E11	309	(AF)	2				
82	02	2	18176	S14	W17	323	5500	3.5	22952	S13	W17	324	(D)	5	H	1330	52	FKC
82	02	3	18176	S14	W30	323	7000	3.5	22952	S13	W30	323	(D)	5	H	1090	46	FKC
82	02	4	18176							S13	W42				H	940	28	FKI
82	02	5	18176						22952	S13	W59	325	(B)	4	B	730	19	FKI
82	02	6	18176						22952	S13	W70	323	(B)	3	B	450	7	FAO
82	02	7	18176	S15	W82	322	2000	3.0	22952	S15	W79	318	B	3	H	180	4	EAO

HALE REGION 18184 CMP DATE 2.5

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	01	27	18184	N14	E84	302	600	2.0	22953	N11	E71	315	(AP)	3	H	20	3	BXO
82	01	29	18184						22953	N10	E48	311	(B)	4				
82	01	30	18184	N12	E38	308	2700	3.0	22953	N10	E33	312	(D)	4				
82	01	31	18184	N11	E24	309	2900	3.0	22953	N10	E22	311	(B)	4				
82	02	1	18184	N12	E11	309	2700	3.0	22953	N09	E06	314	(D)	5				
82	02	2	18184	N12	W03	309	2200	2.5	22953	N09	W07	314	(BP)	5	H	230	11	DSO
82	02	3	18184	N11	W16	309	1700	2.5	22953	N09	W20	313	(BP)	5	H	130	4	HAX
82	02	4	18184							N08	W30				H	140	9	CSO
82	02	5	18184						22972	N12	W41	307	(AF)	2	B	90	3	CSO

CONT

REGIONS OF SOLAR ACTIVITY

FEBRUARY 1982

HALE REGION 18184 (CONT) CMP DATE 2.5

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT		MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	02	5	18184						22953	N08 W47	313	(BP)	4	B	90	3	CSO
82	02	6	18184						22953	N08 W62	315	(BP)	3	B	140	2	CAO
82	02	7	18184	N10 W70	310	1500	2.5		22953	N08 W79	318	AP	3	H	80	1	HAX
82	02	8	18184							N09 W81				M	250	1	HSX

HALE REGION 18183 CMP DATE 2.6 RETURN OF REGION 18117 ROTATION 4

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT		MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	01	27	18183	S16 E80	306	1000	1.5			S14 E74				M	380	3	EAO
82	01	30	18183	S17 E38	308	500	1.5										
82	01	31	18183	S17 E25	308	500	2.0										

HALE REGION 18190 CMP DATE 3.5

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT		MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	01	29	18190						22955	N14 E58	301	(B)	5				
82	01	30	18190	N17 E47	299	3000	3.5		22958	N16 E52	293	(B)	3				
82	01	30	18190	N17 E47	299	3000	3.5		22955	N14 E43	302	(B)	5				
82	01	31	18190	N17 E34	299	2800	3.0		22955	N15 E30	303	(B)	4				
82	01	31	18190	N17 E34	299	2800	3.0		22958	N15 E40	293	(AP)	3				
82	02	1	18190	N17 E22	298	2800	3.0		22958	N16 E25	295	(B)	2				
82	02	1	18190	N17 E22	298	2800	3.0		22955	N14 E16	304	(B)	5				
82	02	2	18190	N17 E10	296	2300	3.0		22958	N17 E12	295	(AF)	3	H	120	7	DSO
82	02	2	18190	N17 E10	296	2300	3.0		22955	N14 E03	304	(B)	4	H	120	7	DSO
82	02	3	18190	N16 W03	296	2300	2.5		22955	N15 W09	302	(BP)	5	H	130	10	CSO
82	02	4	18190							N15 W20				H	90	4	DSO
82	02	5	18190						22955	N15 W34	300	(BY)	4	B	140	15	DAO
82	02	6	18190						22955	N14 W53	306	(AP)	4	B	40	1	HSX
82	02	7	18190	N16 W57	297	1400	2.5		22955	N15 W67	306	AP	3	H	30	1	HSX
82	02	8	18190							N15 W70				M	110	1	HSX

HALE REGION 18199 CMP DATE 3.7

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT		MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	02	3	18199	S07 W00	293	100	2.0		22969	S06 E02	291	(AP)	2				
82	02	4	18199							S06 W11				H	10	2	BXO
82	02	5	18199						22969	S06 W27	293	(BP)	2	B	10	6	BXO
82	02	6	18199						22969	S06 W41	294	(B)	3	R	160	18	DKO
82	02	7	18199	S07 W54	294	2400	3.5		22969	S05 W56	295	B	5	H	130	15	DSO
82	02	9	18199	S07 W80	294	1200	3.0			S05 W85				R	160	4	CAO

HALE REGION 18189 CMP DATE 3.9 RETURN OF REGIONS 18121 AND 18128 ROTATION 2

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT		MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	01	29	18189						22956	S15 E69	290	(B)	4				
82	01	30	18189	S16 E58	288	3800	2.5		22956	S18 E51	294	(B)	4				
82	01	30	18189	S16 E58	288	3800	2.5		22959	S16 E62	283	(BF)	4				
82	01	31	18189	S16 E45	288	4200	3.5		22962	S19 E42	291	(B)	4				
82	01	31	18189	S16 E45	288	4200	3.5		22956	S16 E36	297	(BP)	3				
82	01	31	18189	S16 E45	288	4200	3.5		22959	S14 E50	283	(B)	3				
82	02	1	18189	S17 E31	289	5000	3.0		22959	S15 E36	284	(B)	4				
82	02	1	18189	S17 E31	289	5000	3.0		22956	S16 E23	297	(AP)	3				
82	02	1	18189	S17 E31	289	5000	3.0		22962	S19 E30	290	(BY)	5				

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HALE REGION 18189 (CONT) CMP DATE 3.9 RETURN OF REGIONS 18121 AND 18128 ROTATION 2

			CALCIUM PLAGE DATA						SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	02	2	18189	S17 E16	290	4700	3.5	22959	S14 E22	285	(B)	3	H	150	21	EAI
82	02	2	18189	S17 E16	290	4700	3.5	22956	S14 E08	299	(AP)	2	H	150	21	EAI
82	02	2	18189	S17 E16	290	4700	3.5	22962	S19 E16	291	(BY)	4	H	150	21	EAI
82	02	3	18189	S17 E03	290	6200	3.5	22959	S12 E07	286	(BP)	3	H	40	9	BXO
82	02	3	18189	S17 E03	290	6200	3.5	22962	S19 E04	289	(BY)	4	H	150	26	ESI
82	02	4	18189						S18 E09				H	10	2	BXO
82	02	5	18189					22962	S19 W21	287	(BY)	3	B	140	15	EKO
82	02	5	18189					22959	S14 W20	286	(B)	2	B	140	15	EKO
82	02	6	18189					22962	S19 W35	288	(BY)	3	B	110	10	DAI
82	02	6	18189					22959	S16 W28	281	AF	1	B	10	2	BXO
82	02	7	18189	S18 W50	290	5700	3.5	22962	S19 W48	287	B	4	H	150	10	DSO
82	02	9	18189	S18 W76	290	3200	2.5		S20 W75				H	30	1	HSX
82	02	10	18189						S18 W88				R	60	1	HKX

HALE REGION 18196 CMP DATE 4.1

			CALCIUM PLAGE DATA						SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	02	2	18196	N15 E18	288	500	3.5	22967	N14 E20	287	(B)	4	B	10	7	CSO
82	02	3	18196	N15 E05	288	500	3.5	22967	N15 E06	287	(B)	4	R	90	8	DRO
82	02	4	18196						N16 E02				L	90	6	DAI
82	02	5	18196					22967	N15 W23	289	(B)	3	B	80	9	CSO
82	02	6	18196					22967	N15 W36	289	(BY)	4	B	170	7	DAI
82	02	7	18196	N14 W47	287	1500	3.5	22967	N15 W50	289	B	5	H	130	14	DAO
82	02	8	18196						N15 W55				M	400	18	DAO
82	02	9	18196	N14 W74	288	2500	3.5		N13 W78				H	100	6	DAO
82	02	10	18196						N14 W83				M	190	3	DSO

HALE REGION 18200 CMP DATE 4.9

			CALCIUM PLAGE DATA						SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	02	3	18200	N38 E10	283	100	2.5									

HALE REGION 18191 CMP DATE 5.3

			CALCIUM PLAGE DATA						SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	01	30	18191	S18 E78	268	500	1.0	22960	S22 E78	267	(AF)	3				
82	01	31	18191	S18 E65	268	400	1.0	22960	S20 E61	272	(AF)	3				
82	02	1	18191	S18 E48	272	200	2.5	22960	S19 E47	273	(AF)	4				
82	02	2	18191	S18 E35	271	400	2.0	22960	S19 E35	272	(BP)	3	B	10	1	HSX
82	02	3	18191	S18 E22	271	400	3.0	22960	S19 E22	271	(B)	4	H	20	4	AXX
82	02	4	18191						S18 E09				H	10	2	BXO
82	02	5	18191					22960	S19 W05	271	(B)	3	B	30	4	CAO
82	02	6	18191					22960	S19 W20	273	AF	3	B	10	2	BXO
82	02	7	18191	S18 W31	271	400	2.5	22960	S19 W32	271	B	2	H	10	4	BXO
82	02	8	18191						S19 W51				M	220	15	DSO

HALE REGION 18194 CMP DATE 5.9 RETURN OF REGION 18123 ROTATION 4

			CALCIUM PLAGE DATA						SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	01	30	18194					22961	S18 E80	265	(AP)	3				
82	01	31	18194					22961	S16 E65	268	(AP)	3				
82	02	1	18194	S16 E57	263	500	2.0	22961	S15 E52	268	(AP)	4				
82	02	2	18194	S16 E43	263	500	2.0	22961	S15 E39	268	(AP)	3	B	10	1	HSX
82	02	3	18194	S16 E28	265	500	2.0	22961	S15 E27	266	(AP)	4	H		1	AXX
82	02	4	18194						S15 E15				H	20	1	HSX

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HALE REGION 18194 (CONT) CMP DATE 5.9 RETURN OF REGION 18123 ROTATION 4

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	02	5	18194					22961	S15 E01	265	(AP)	3	B	10	1	AXX
82	02	6	18194					22961	S16 W13	266	AP	2	B	10	2	BXO
82	02	7	18194	S17 W24	264	200	1.5									
82	02	8	18194						S20 W35				M	10	3	BXO
82	02	9	18194	S17 W50	264	100	1.5									

HALE REGION 18193 CMP DATE 6.0 RETURN OF REGION 18123 ROTATION 4

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	02	1	18193	S23 E59	261	500	2.0									
82	02	2	18193	S23 E44	262	500	2.0		S19 E44				M	20	2	HAX
82	02	3	18193	S23 E30	263	700	2.0									
82	02	7	18193	S24 W22	262	500	1.5									
82	02	9	18193	S24 W48	262	500	2.5		S22 W56				H		1	AXX
82	02	10	18193						S20 W61				M	10	1	AXX

HALE REGION 18192 CMP DATE 6.2

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	01	31	18192	S05 E78	255	700	2.0	22963	S05 E81	252	B	2				
82	02	1	18192	S05 E67	253	1500	3.0	22963	S06 E66	254	(B)	3				
82	02	2	18192	S05 E51	255	1200	2.5	22963	S06 E50	257	(B)	3	B	20	3	CSO
82	02	3	18192	S06 E37	256	1500	2.0	22963	S06 E37	256	(B)	4	H	70	15	BXI
82	02	4	18192						S05 E22				H	70	11	EAO
82	02	5	18192					22963	S05 E05	261	(BP)	2	B	20	5	CSO
82	02	6	18192					22963	S05 W10	263	(AP)	3	R	20	5	CSO
82	02	7	18192	S06 W20	260	1100	2.0	22963	S05 W25	264	AP	3	H	20	6	BXO
82	02	9	18192	S06 W46	260	1000	1.5		S05 W51				H	10	1	AXX
82	02	10	18192						S05 W55				M	10	3	BXO

HALE REGION 18195 CMP DATE 7.3 RETURN OF TRAILING POLARITY OF 18122 ROTATION 2

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	02	1	18195	S35 E71	249	400	1.5									
82	02	2	18195	S36 E58	248	400	1.0									
82	02	3	18195	S36 E46	247	500	1.5									
82	02	7	18195	S36 W06	246	400	2.0									
82	02	9	18195	S36 W30	244	400	1.5									

HALE REGION 18202 CMP DATE 7.3

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	02	7	18202	S10 W06	246	100	1.0	22978	S10 W07	246	X	2	H		1	AXX

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HALE REGION 18197 CMP DATE 7.5

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT		MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	02	2	18197	N21 E64	242	100	1.5										
82	02	3	18197	N21 E50	243	200	1.0		22970	N21 E51	242	(AF)	2	L		1	AXX
82	02	5	18197						22970	N20 E23	243	(AP)	3	B	30	1	HSX
82	02	6	18197						22970	N21 E10	243	AP	2	R	10	3	BXO

HALE REGION 18203 CMP DATE 7.5

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT		MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	02	7	18203	N22 W03	243	200	2.5										
82	02	9	18203	N20 W28	242	200	2.0										

HALE REGION 18198 CMP DATE 8.9

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT		MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	02	2	18198	S17 E82	224	2800	2.5		22968	S16 E80	227	(AP)	2				
82	02	3	18198	S17 E70	223	2200	2.5		22968	S16 E66	227	(AP)	3	H		1	AXX
82	02	5	18198						22968	S18 E39	227	(AP)	3	L	10	2	AXX
82	02	6	18198						22968	S18 E26	227	(AP)	3				
82	02	7	18198	S17 E17	223	1000	2.5		22968	S17 E12	227	AP	3	H	10	4	BXO
82	02	7	18198	S17 E17	223	1000	2.5		22979	S18 E18	221	X	2	H	10	4	BXO
82	02	9	18198	S18 W10	224	1100	2.5										
82	02	13	18198	S19 W64	225	700	1.5										
82	02	14	18198	S18 W78	224	700	1.5										

HALE REGION 18204 CMP DATE 9.6

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT		MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	02	7	18204	S13 E25	215	800	4.0										
82	02	8	18204							S17 E10				M	20	4	BXO
82	02	9	18204	S13 W02	216	1200	3.5										
82	02	10	18204							S11 W11				H	1740	79	FKC
82	02	11	18204						22982	S12 W32	219	(BP)	4	H	1990	68	FKC
82	02	12	18204						22982	S11 W48	219	BP	4				
82	02	13	18204	S13 W57	218	900	3.0		22982	S11 W58	219	(AP)	4	B	1520	55	FKC
82	02	14	18204	S13 W72	218	800	3.0		22982	S12 W70	219	(AP)	3	H	1770	45	FKC
82	02	15	18204						22982	S11 W85	220	AP	2	H	1780	19	FKC

HALE REGION 18206 CMP DATE 9.8

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT		MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	02	7	18206	N22 E28	212	200	2.5		22980	N23 E27	212	B	2	P	20	3	BXO
82	02	9	18206	N22 E01	213	400	2.5			N23 E02				H	40	2	DSO
82	02	11	18206						22980	N23 W28	215	(B)	3	H	10	1	AXX
82	02	12	18206						22980	N23 W42	213	B	3	R	20	1	AXX
82	02	13	18206	N23 W53	214	1200	3.5		22980	N23 W51	212	(B)	4	B	90	6	CSO
82	02	14	18206	N23 W66	212	1100	3.5		22980	N23 W62	211	(B)	3	H	20	3	BXO
82	02	15	18206	N23 W79	215	900	1.5		22980	N23 W78	213	(AP)	2	H		1	AXX

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HALE REGION 18205 CMP DATE 9.9

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT		MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	02	6	18205						22975	S19 E42	211	(B)	2	R	20	2	CAO
82	02	7	18205	S19 E28	212	600	3.5		22975	S19 E28	211	B	3	H	20	7	BXO
82	02	9	18205	S20 E03	211	700	3.0			S20 E02				H	60	6	DAO
82	02	11	18205						22975	S20 W26	213	(B)	2	R	10	3	BXO
82	02	12	18205						22975	S20 W37	208	AP	3				
82	02	13	18205	S21 W50	211	700	2.5		22975	S19 W46	207	(AP)	3				
82	02	14	18205	S20 W64	210	800	2.5		22975	S19 W56	205	AP	1				
82	02	15	18205	S20 W76	212	700	2.0										

HALE REGION 18201 CMP DATE 10.7 RETURN OF REGION 18142 ROTATION 2

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT		MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	02	3	18201	S10 E85	208	2500	4.0		22971	S10 E85	208	(AP)	3	H	660	2	EHO
82	02	4	18201							S09 E73				H	1500	18	EKI
82	02	5	18201						22971	S09 E61	205	(D)	5	B	2540	30	FKC
82	02	6	18201						22971	S09 E49	204	(D)	5	B	2600	36	FKC
82	02	7	18201	S09 E37	203	6000	3.5		22971	S09 E34	205	D	6	H	1590	68	FKI
82	02	8	18201							S09 E34				M	2480	82	FKC
82	02	9	18201	S10 E13	201	7600	3.5			S10 E05				H	1750	62	FKC
82	02	10	18201							S08 E06				H	450	32	CKC
82	02	11	18201						22971	S10 W13	200	(D)	5	B	170	4	CKI
82	02	12	18201						22971	S10 W30	201	D	5	H	1580	44	FKI
82	02	13	18201	S10 W42	203	6500	3.5		22971	S10 W38	199	(D)	5	B	280	19	DKI
82	02	14	18201	S10 W55	201	6500	3.5		22971	S10 W52	201	(D)	5	H	1770	45	FKC
82	02	15	18201	S10 W68	204	6800	3.5		22971	S10 W61	196	(B)	4	H	160	5	CAO
82	02	16	18201	S10 W81	203	2200	2.5		22971	S09 W78	198	(B)	3	H	490	3	DKC
82	02	17	18201	S09 W90	198	500	2.0		22971	S09 W90		(AF)	3	B	60	1	HSX

HALE REGION 18223 CMP DATE 10.9

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT		MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	02	16	18223	S18 W76	198	300	1.5										

HALE REGION 18207 CMP DATE 11.9 RETURN OF REGION 18143 ROTATION 2

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT		MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	02	5	18207						22973	S13 E79	187	(AP)	3	M	280	2	DAO
82	02	6	18207						22973	S14 E65	188	(AP)	3	R	20	2	CAO
82	02	7	18207	S14 E56	184	600	2.5		22973	S13 E52	187	AP	4	H	50	4	CSO
82	02	8	18207							S12 E49				M	40	3	CSO
82	02	9	18207	S14 E31	183	400	2.5			S13 E27				H		1	AXX
82	02	10	18207							S13 E12				H		1	AXX
82	02	11	18207						22973	S14 E04	183	(AF)	3	H	10	2	AXX
82	02	13	18207	S15 W23	184	300	1.5			S10 W28				R	280	23	DKO

HALE REGION 18212 CMP DATE 12.2

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT		MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	02	9	18212	N15 E32	182	200	2.0			N17 E32				H	80	2	BXO
82	02	10	18212							N16 E18				H		1	AXX
82	02	13	18212	N15 W23	184	200	1.0										
82	02	14	18212	N15 W37	183	100	1.0										
82	02	15	18212	N15 W49	185	100	1.0										

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HALE REGION 18212 (CONT) CMP DATE 12.2

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	02	16	18212	N12 W60	182	100	1.0									
82	02	17	18212	N10 W74	182	100	1.0									

HALE REGION 18209 CMP DATE 12.5 RETURN OF REGION 18136 ROTATION 2

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	02	5	18209					22974	N02 E81	185	AP	2				
82	02	6	18209					22974	N01 E68	185	(AP)	3	R	60	2	CKO
82	02	7	18209	N04 E63	177	1500	2.0	22974	N01 E56	183	AP	4	H	70	2	HAX
82	02	8	18209						N02 E54				M	170	2	HSX
82	02	9	18209	N02 E36	178	700	2.0									
82	02	10	18209						N01 E26				H	80	1	HSX
82	02	11	18209					22974	N01 E03	184	(AP)	4	H	80	2	HSX
82	02	12	18209					22974	N01 W12	183	AP	4	H	90	2	HSX
82	02	13	18209	N01 W16	177	600	2.0	22974	N01 W21	182	(AP)	4	B	100	1	HSX
82	02	14	18209	N01 W30	176	500	2.0	22974	N01 W35	184	(AP)	4	H	100	1	HSX
82	02	15	18209	N01 W41	177	600	1.5	22974	N01 W54	189	(AP)	4	H	90	1	HSX
82	02	16	18209	N01 W54	176	400	1.0	22974	N01 W64	184	(AP)	4	H	30	1	HAX
82	02	17	18209	N01 W69	177	300	1.0	22974	N01 W75	184	(AP)	3	H	30	1	HSX

HALE REGION 18213 CMP DATE 12.5

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	02	9	18213	N06 E37	177	700	2.0		N07 E36				H		1	AXX
82	02	13	18213	N07 W16	177	500	1.5									
82	02	14	18213	N07 W31	177	500	1.5									
82	02	15	18213	N07 W43	179	400	1.0									
82	02	16	18213	N05 W55	177	300	1.0									
82	02	17	18213	N04 W68	176	300	1.0		N03 W75				B	60	1	HSX

HALE REGION 18208 CMP DATE 12.6 RETURN OF LEADING POLARITY OF 18137 ROTATION 2

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	02	6	18208					22976	S08 E79	174	(AF)	3				
82	02	7	18208	S07 E64	176	500	2.0	22976	S07 E65	174	AF	2	H		1	AXX
82	02	8	18208						S12 E49				M	40	3	CSO
82	02	9	18208	S08 E39	175	700	2.0		S07 E38				H	20	4	BXO
82	02	10	18208						S08 E22				H	10	2	AXX
82	02	11	18208					22976	S09 E09	178	(AP)	3	H	10	3	AXX
82	02	12	18208					22976	S09 W06	177	AP	3	H	20	5	BXO
82	02	13	18208	S09 W15	176	1100	2.5	22976	S09 W15	176	(B)	2	B	10	5	BXO
82	02	14	18208	S09 W32	178	1000	2.0		S09 W30				H		2	BXO
82	02	15	18208	S09 W44	180	800	2.0	22976	S09 W44	179	(B)	3	H	10	4	BXO
82	02	16	18208	S09 W57	179	1000	2.0		S06 W63				B	30	1	HSX
82	02	17	18208	S09 W72	180	700	1.5	22976	S10 W70	179	(AF)	2	B	60	1	HSX

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HALE REGION 18210 CMP DATE 13.4 RETURN OF REGION 18158 ROTATION 2

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	02	6	18210						22977	S13	E88	165	AP	2				
82	02	7	18210	S13	E74	166	1300	2.5	22977	S13	E74	165	AP	4	H	140	2	HAX
82	02	9	18210	S13	E52	162	2800	2.5		S13	E49				H	170	2	DAC
82	02	10	18210							S15	E33				H	240	9	CKI
82	02	11	18210						22977	S13	E21	166	(BP)	4	H	200	8	DSI
82	02	12	18210						22977	S13	E06	165	BP	4	H	140	10	DAO
82	02	13	18210	S14	W04	165	2700	3.5	22985	S16	E03	158	(AF)	2	L	140	7	CAO
82	02	13	18210	S14	W04	165	2700	3.5	22977	S13	W07	168	(BY)	5	B	130	22	DSI
82	02	14	18210	S14	W17	163	2800	3.5	22977	S13	W19	168	(BF)	4	H	160	24	DAI
82	02	15	18210	S14	W30	166	2500	3.5	22977	S12	W33	168	(BY)	4	H	100	11	DSO
82	02	16	18210	S14	W43	165	2500	3.0	22977	S12	W48	168	(AP)	4	H	80	6	CAO
82	02	17	18210	S14	W57	165	2700	3.0	22977	S12	W56	165	(AP)	4	H	10	1	HSX
82	02	18	18210						22977	S12	W72	168	(AP)	3	H	30	1	HAX
82	02	19	18210	S15	W85	167	600	1.0		S12	W75				L	20	2	HAX

HALE REGION 18211 CMP DATE 14.1

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	02	7	18211	N15	E84	156	600	2.5	22981	N14	E85	154	AP	2	H	70	1	HSX
82	02	8	18211							N15	E80				L	140	1	HSX
82	02	9	18211	N14	E57	157	1700	2.5		N15	E57				H	80	1	HSX
82	02	10	18211							N15	E41				H	120	2	HSX
82	02	11	18211						22981	N15	E29	158	(AP)	4	H	180	1	HSX
82	02	12	18211						22981	N16	E14	157	AP	4	H	120	1	HSX
82	02	13	18211	N14	E05	156	1400	3.0	22981	N15	E05	156	(BP)	5	B	170	3	HSX
82	02	14	18211	N15	W10	156	1500	3.0	22981	N15	W08	157	(AP)	4	H	90	4	DAO
82	02	15	18211	N15	W21	157	1200	3.5	22981	N15	W22	157	(AP)	4	H	50	6	DAO
82	02	16	18211	N15	W34	156	1200	2.5	22981	N15	W37	157	(AP)	4	H	30	1	HSX
82	02	17	18211	N15	W47	155	1000	2.5	22981	N15	W47	156	(AP)	3	H	30	1	HSX
82	02	18	18211						22981	N15	W65	161	(AP)	3	H	10	2	AXX
82	02	19	18211	N16	W74	156	500	1.0										

HALE REGION 18214 CMP DATE 14.5

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	02	9	18214	N10	E65	149	700	1.5		N09	E61				H		1	AXX
82	02	10	18214							N09	E52				H		1	AXX
82	02	11	18214						22983	N10	E39	148	(AF)	2	H	10	1	AXX
82	02	13	18214	N08	E11	150	600	2.0										
82	02	14	18214	N08	W05	151	400	2.0										
82	02	15	18214	N08	W17	153	400	2.0										
82	02	16	18214	N08	W30	152	300	1.5										
82	02	17	18214	N08	W44	152	400	1.5										
82	02	19	18214	N09	W70	152	200	1.0										

HALE REGION 18215 CMP DATE 16.3 NEW, NEAR LOCATION OF REGION 18147

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	02	13	18215	N15	E34	127	300	1.5										
82	02	14	18215	N15	E20	126	600	1.0										
82	02	15	18215	N15	E07	129	400	1.0										
82	02	16	18215	N15	W05	127	400	1.5										
82	02	17	18215	N15	W20	128	400	1.5										
82	02	19	18215	N17	W45	127	500	1.0										
82	02	20	18215	N17	W57	126	300	1.0										
82	02	21	18215	N17	W70	126	200	1.0										

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HALE REGION 18219 CMP DATE 17.6

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT
82	02	15	18219	N11	E27	109	200	2.0
82	02	16	18219	N12	E14	108	300	2.5
82	02	17	18219	N13	W01	109	300	1.0
82	02	19	18219	N13	W26	108	400	1.5
82	02	20	18219	N13	W38	107	300	1.5
82	02	21	18219	N13	W51	107	300	1.0

SUNSPOT DATA

MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
22987	N11	E27	108	(B)	3	H		2	BXO
22987	N12	E11	109	(B)	2	H	20	4	BXO
22987	N11	W00	109	(BF)	3	H	20	7	BXO
	N12	W19				L		3	BXO
	N12	W32				L	10	4	BXO

HALE REGION 18216 CMP DATE 18.0 RETURN OF REGION 18151 ROTATION 2

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT
82	02	11	18216					
82	02	12	18216					
82	02	13	18216	N04	E57	104	3800	3.0
82	02	14	18216	N04	E43	103	4300	3.0
82	02	15	18216	N04	E30	106	3800	3.0
82	02	16	18216	N04	E17	105	3900	3.5
82	02	17	18216	N04	E04	104	3000	3.5
82	02	18	18216					
82	02	19	18216	N04	W24	106	4000	4.0
82	02	20	18216	N04	W38	107	3800	3.5
82	02	21	18216	N04	W52	108	3800	3.5
82	02	22	18216	N03	W66	108	3500	3.0
82	02	23	18216					

SUNSPOT DATA

MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
22984	N02	E80	107	(AP)	3	H	390	2	HHX
22984	N04	E69	102	B	5	H	770	6	EKI
22984	N04	E54	107	(B)	5	B	630	6	DKC
22984	N03	E41	108	(B)	5	H	770	6	DKO
22984	N03	E28	107	(BY)	5	H	710	8	DKI
22984	N03	E12	108	(D)	5	H	680	14	DKI
22984	N03	E01	108	(BY)	5	H	630	23	DKI
22984	N03	W13	109	(BP)	5	H	680	31	DKI
22984	N03	W27	109	(D)	5	H	800	33	DKC
22984	N03	W41	110	(D)	5	H	960	44	DKI
22984	N03	W55	111	(D)	4	H	660	35	DAI
22984	N02	W69	112	(AP)	4	H	370	10	DKC
22984	N01	W85	113	AP	3	H	360	3	DKI

HALE REGION 18222 CMP DATE 18.8 RETURN OF REGION 18148 ROTATION 3

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT
82	02	18	18222					
82	02	19	18222	S23	W12	94	100	1.0
82	02	20	18222	S23	W25	94	100	1.0
82	02	21	18222	S23	W37	93	200	1.0

SUNSPOT DATA

MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
22991	S22	E02	94	(AP)	4	H	10	3	BXO
22991	S23	W12	94	(B)	3	H	10	2	BXO
22991	S22	W27	96	(AP)	3	B	10	1	AXX
	S23	W32				L		1	AXX

HALE REGION 18217 CMP DATE 18.9

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT
82	02	13	18217	N05	E70	91	2500	2.5
82	02	14	18217	N05	E55	91	2700	2.5
82	02	15	18217	N04	E43	93	2700	2.5
82	02	16	18217	N04	E30	92	1900	3.0
82	02	17	18217	N04	E16	92	1300	2.5
82	02	18	18217					
82	02	19	18217	N04	W11	93	1300	2.5
82	02	19	18217	N04	W11	93	1300	2.5
82	02	20	18217	N04	W24	93	1300	2.5
82	02	21	18217	N04	W37	93	1400	2.5
82	02	22	18217	N04	W50	92	1300	2.5
82	02	23	18217					
82	02	24	18217					

SUNSPOT DATA

MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
22986	N05	E68	93	(BP)	4	B	110	4	CSO
22986	N05	E55	94	(BP)	5	H	100	10	CSO
22986	N05	E41	94	(BP)	5	H	180	4	CSO
22986	N05	E24	96	(AP)	5	H	160	3	CSO
22986	N05	E13	96	(BY)	5	H	170	5	CSO
22986	N05	W00	96	(AP)	5	H	170	1	HSX
22993	N02	W06	88	(AF)	3	H	110	1	HSX
22986	N05	W15	97	(BP)	5	H	110	1	HSX
22986	N06	W27	96	(BP)	5	H	170	2	CSO
22986	N06	W42	98	(AP)	5	H	160	1	HSX
22986	N05	W56	99	(AP)	4	H	130	1	HSX
22986	N04	W71	99	(AP)	4	H	100	1	HSX
	N08	W86				R	40	1	HSX

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HALE REGION 18218 CMP DATE 19.1 RETURN OF LEADING POLARITY OF 18160 ROTATION 5

			CALCIUM PLAGE DATA						SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	02	14	18218	S10 E58	88	400	2.0									
82	02	15	18218	S10 E45	91	400	2.0	22988	S11 E51	84	(AP)	2				
82	02	16	18218	S11 E33	89	300	2.0									
82	02	17	18218	S10 E18	90	700	1.5									
82	02	19	18218	S10 W08	90	500	1.5	22992	S10 W10	92	(AP)	3	R	10	1	AXX
82	02	20	18218	S11 W22	91	400	1.5									
82	02	21	18218	S10 W35	91	500	2.0									
82	02	22	18218	S10 W49	91	500	2.5									

HALE REGION 18235 CMP DATE 20.8

			CALCIUM PLAGE DATA						SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	02	26	18235	S12 W77	67	300	2.5									

HALE REGION 18220 CMP DATE 21.0

			CALCIUM PLAGE DATA						SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	02	15	18220	N13 E73	63	1500	3.5	22989	N11 E72	63	(B)	3	H	20	3	C O
82	02	16	18220	N13 E60	62	2300	3.5	22989	N11 E58	62	(B)	4	H	220	6	DAO
82	02	17	18220	N13 E46	62	2800	4.0	22989	N12 E45	64	(D)	5	H	300	21	DAO
82	02	18	18220					22989	N12 E32	64	(B)	5	H	500	29	EKI
82	02	19	18220	N13 E18	64	3500	3.5	22989	N12 E18	64	(B)	4	H	330	19	EKI
82	02	20	18220	N13 E05	64	3400	3.5	22989	N12 E06	63	(B)	4	H	220	24	DAO
82	02	21	18220	N13 W08	64	3500	3.5	22989	N13 W07	63	(B)	4	H	160	25	EAI
82	02	22	18220	N14 W22	64	3500	3.5	22989	N12 W21	64	(B)	4	H	110	11	EAO
82	02	23	18220					22989	N11 W36	64	(BP)	4	H	50	7	CSO
82	02	24	18220						N14 W47				R	20	7	BXO
82	02	26	18220	N15 W74	64	3800	3.0									

HALE REGION 18230 CMP DATE 22.2

			CALCIUM PLAGE DATA						SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	02	22	18230	S34 W07	49	200	1.0	23001	S35 W07	50	(B)	3	H	10	2	BXO

HALE REGION 18221 CMP DATE 22.4 NEW, IN LOCATION OF REGION 18168

			CALCIUM PLAGE DATA						SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	02	17	18221	N16 E65	43	1100	2.5									
82	02	19	18221	N17 E37	45	200	2.0									
82	02	20	18221	N17 E24	45	300	2.0	22996	N17 E22	47	(B)	3	H	10	3	BXO
82	02	21	18221	N17 E10	46	500	2.5	22996	N16 E06	50	(AP)	3	H	10	5	BXO
82	02	22	18221	N17 W04	46	400	2.0									
82	02	24	18221						N18 W25				R	10	3	BXO

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HALE REGION 18249 CMP DATE 23.0

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	02	23	18249						23002	N17	W12	40	(B)	3	H	10	3	BXO
82	02	24	18249							N18	W25				R	10	3	BXO
82	02	25	18249						23002	N18	W38	41	(B)	2	R	30	3	CAO
82	02	26	18249	N17	W48	38	400	3.0	23002	N18	W51	41	(AP)	2	B	20	1	AXX
82	02	27	18249	N17	W62	37	200	2.5		N18	W55				M		1	AXX

HALE REGION 18224 CMP DATE 24.3 NEW, IN LOCATION OF REGION 18170

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	02	19	18224	N07	E68	14	2500	2.5	22994	N06	E66	16	(B)	4	H	40	3	CAO
82	02	20	18224	N06	E54	15	1800	2.5	22994	N05	E50	19	(B)	4	H	50	5	CSO
82	02	21	18224	N06	E38	18	1800	2.5	22994	N06	E35	21	(B)	4	H	50	6	CAO
82	02	22	18224	N07	E24	18	2000	4.0	22994	N06	E21	22	(B)	4	H	40	4	CAO
82	02	23	18224						22994	N06	E07	21	(B)	3	H	40	11	BXI
82	02	24	18224							N07	W04				B	40	7	DSO
82	02	25	18224						22994	N06	W19	22	(B)	3	B	20	6	DRO
82	02	26	18224	N07	W30	20	1800	3.5	22994	N06	W31	21	(B)	3	B	10	2	BXO
82	02	27	18224	N07	W45	20	700	3.0										
82	02	28	18224	N07	W60	24	500	2.5										

HALE REGION 18228 CMP DATE 24.7

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	02	21	18228	S13	W58	114	200	1.5	22999	S12	W59	115	(AF)	2	H		1	AXX
82	02	22	18228	S13	W74	116	400	1.0		S13	W67				L		1	AXX

HALE REGION 18225 CMP DATE 25.7 RETURN OF REGION 18180 ROTATION 2

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	02	19	18225	S15	E78	4	2500	2.5	22995	S12	E78	4	(AP)	4	H	130	1	HSX
82	02	20	18225	S16	E66	3	2500	3.0	22995	S12	E64	5	(AP)	4	H	220	1	HSX
82	02	21	18225	S16	E54	2	1800	2.5	22995	S12	E50	6	(AP)	5	H	210	1	HSX
82	02	22	18225	S16	E40	2	1100	2.5	22995	S12	E37	6	(AP)	5	H	180	2	HSX
82	02	23	18225						22995	S12	E23	5	(AP)	5	H	170	2	HSX
82	02	24	18225							S12	E12				B	100	1	HSX
82	02	25	18225						22995	S12	W02	5	(BP)	4	B	190	2	CSO
82	02	26	18225	S16	W12	2	700	2.5	22995	S12	W15	5	(AP)	5	B	180	1	HHX
82	02	27	18225	S16	W26	1	700	2.0	22995	S12	W23		(AP)	5	H	180	1	HSX
82	02	28	18225	S16	W39	3	500	2.0	22995	S12	W41	4	(AP)	4	H	180	1	HSX
82	03	2	18225							S12	W66				B	80	1	HSX
82	03	3	18225	S16	W80	4	900	2.0	22995	S13	W82	4	AP	3	H	90	1	HSX

HALE REGION 18226 CMP DATE 26.5 RETURN OF REGIONS 18172 AND 18182 ROTATION 4

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	02	20	18226	N07	E75	354	1500	2.0	22997	N09	E72	357	(AP)	3	B	10	1	AXX
82	02	21	18226	N08	E62	354	1500	2.5	22997	N09	E59	357	(AP)	3	H	10	2	AXX
82	02	22	18226	N10	E50	352	1500	2.5	22997	N09	E46	357	(AP)	3	H	10	1	AXX
82	02	24	18226							N10	E30				M		1	AXX
82	02	25	18226						23006	N10	E18	345	(AP)	2	M	10	3	BXO
82	02	26	18226	N10	W02	352	1500	2.5										
82	02	27	18226	N10	W15	350	1300	2.0		N10	W08				M	10	3	BXO
82	02	28	18226	N10	W28	352	1300	2.0										
82	03	3	18226	N11	W68	352	1100	2.0	23014	N09	W59	341	X	2	H	10	3	AXX
82	03	4	18226	N12	W78	350	1300	2.0										

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FEBRUARY 1982

HALE REGION 18227 CMP DATE 26.9 RETURN OF REGION 18175 ROTATION 2

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	02	20	18227	S15	E85	344	1400	2.5	22998	S07	E85	344	(AP)	4	H	60	1	HSX
82	02	21	18227	S14	E70	346	1300	2.5	22998	S07	E69	347	(AP)	4	H	140	4	HSX
82	02	22	18227	S10	E55	347	1800	2.5	22998	S07	E54	349	(AP)	4	H	150	1	HSX
82	02	23	18227						22998	S06	E40	348	(AP)	4	H	100	1	HSX
82	02	24	18227							S08	E28				R	100	2	HAX
82	02	25	18227						22998	S08	E15	348	(AP)	4	B	80	1	HSX
82	02	26	18227	S11	E03	347	1700	3.0	22998	S08	E02	348	(AP)	5	B	80	1	HSX
82	02	27	18227	S11	W11	346	900	2.5	22998	S08	W11	348	(AP)	5	H	120	2	CSO
82	02	28	18227	S10	W25	349	700	2.0	22998	S06	W25	348	(AP)	4	H	120	2	HSX
82	02	28	18227	S10	W25	349	700	2.0	23012	S10	W28	351	(B)	3	H	120	2	HSX
82	03	2	18227							S05	W50				B	60	1	HSX
82	03	3	18227	S10	W66	350	800	2.0	22998	S08	W66	348	AP	4	H	150	1	HSX
82	03	4	18227	S10	W80	352	500	2.0	22998	S07	W79	350	(AP)	3	H	70	1	HSX

HALE REGION 18231 CMP DATE 27.5

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	02	22	18231	S03	E65	337	300	2.0										
82	02	24	18231							S08	E39				M	160	1	HSX
82	02	26	18231	S05	E13	337	200	2.0		S09	E15				B	60	1	HSX
82	02	27	18231	S05	W03	338	200	1.5										
82	02	28	18231	S05	W15	339	300	1.0										
82	03	3	18231	S05	W56	340	200	1.0										
82	03	4	18231	S05	W71	343	100	1.0										

HALE REGION 18232 CMP DATE 28.3 RETURN OF REGION 18172 ROTATION 4

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	02	22	18232	N13	E73	329	500	2.0										

HALE REGION 18234 CMP DATE 28.3 RETURN OF REGION 18187 ROTATION 2

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	02	22	18234	N18	E75	327	400	2.0										
82	02	26	18234	N14	E23	327	700	2.0		N10	E20				L	10	5	BXO
82	02	27	18234	N14	E08	327	600	2.0		N15	E18				H		1	AXX
82	02	28	18234	N14	W05	329	600	2.0		N11	W01				L	10	3	AXX
82	03	2	18234							N12	W26				L		1	AXX
82	03	3	18234	N12	W42	326	500	2.0										
82	03	4	18234	N12	W54	326	500	2.0										

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FEBRUARY 1982

HALE REGION 18233 CMP DATE 28.5 RETURN OF REGION 18173 ROTATION 7

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	02	22	18233	N25	E73	329	200	1.0										
82	02	26	18233	N21	E24	326	600	1.5										
82	02	27	18233	N22	E10	325	500	1.5		N19	E04				L	10	2	AXX
82	02	28	18233	N22	W02	326	400	1.5										
82	03	3	18233	N23	W40	324	500	1.5										

HALE REGION 18229 CMP DATE 28.6 RETURN OF REGION 18176 ROTATION 2

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	02	21	18229	S13	E85	331	800	1.5	23000	S12	E83	333	(AP)	4	H	160	1	HSX
82	02	22	18229	S13	E73	329	4800	2.5	23000	S13	E71	332	(AP)	4	H	100	2	HSX
82	02	23	18229						23000	S10	E55	333	(AP)	4	H	250	3	DSO
82	02	23	18229						23005	S12	E62	326	(AP)	4	H	250	3	DSO
82	02	24	18229							S13	E50				B	40	1	HAX
82	02	25	18229						23000	S12	E29	334	(AP)	4	B	70	3	CSO
82	02	25	18229						23005	S13	E37	326	(AP)	4	B	50	1	HSX
82	02	26	18229	S14	E24	326	4800	3.0	23000	S12	E15	335	(BP)	4	B	60	1	HSX
82	02	26	18229	S14	E24	326	4800	3.0	23005	S13	E24	326	(BP)	4	B	60	7	DAO
82	02	27	18229	S14	E10	325	4000	3.0	23005	S13	E11	326	(BP)	4	H	130	20	CAO
82	02	27	18229	S14	E10	325	4000	3.0	23000	S12	E03	334	(BP)	4	H	120	4	CSO
82	02	28	18229	S14	W01	325	4000	3.0	23000	S12	W11	334	(BP)	4	H	130	1	HAX
82	02	28	18229	S14	W01	325	4000	3.0	23005	S13	W02	325	BP	3	H	80	5	CAO
82	03	2	18229							S10	W27				B	40	5	CSO
82	03	3	18229	S15	W41	325	4200	3.0	23000	S14	W52	334	AP	4	H	70	1	HSX
82	03	3	18229	S15	W41	325	4200	3.0	23005	S13	W44	326	AP	3	H	20	1	HSX
82	03	4	18229	S15	W55	327	4300	3.0	23000	S13	W65	336	(AP)	4	H	100	1	HSX
82	03	5	18229	S15	W70	328	3700	2.5	23000	S13	W79	335	AP	3	H	100	1	HSX

NOTE: No solar magnetograms were made at Kitt Peak National Observatory on February 4-6, 8, 10-12, 18, and 23-25, 1982.

On these dates calcium spectroheliograms from Sacramento Peak Observatory were used: None.
No Mt. Wilson sunspot data were available for February 4, 8-10, and 24, 1982.

CONTIGUOUS PLAGES FOR FEBRUARY 1982: 18172/18173/18182/18187/18188
18201/18204
18216/18217

DAILY CALCIUM PLAGE INDEX

YR	MO	DAY	INDEX	YR	MO	DAY	INDEX	YR	MO	DAY	INDEX
82	2	1	97.4	82	2	11	*	82	2	21	33.6
82	2	2	88.3	82	2	12	*	82	2	22	36.6
82	2	3	84.8	82	2	13	49.1	82	2	23	*
82	2	4	*	82	2	14	46.6	82	2	24	*
82	2	5	*	82	2	15	39.8	82	2	25	*
82	2	6	*	82	2	16	33.6	82	2	26	53.1
82	2	7	55.4	82	2	17	29.0	82	2	27	52.0
82	2	8	*	82	2	18	*	82	2	28	55.6
82	2	9	52.9	82	2	19	34.4				
82	2	10	*	82	2	20	32.6				

* NO OBSERVATIONS

SUDDEN IONOSPHERIC DISTURBANCES

FEBRUARY 1982

DAY	UNIVERSAL TIME				WIDE SPREAD INDEX	NUMBER OF STATION REPORTS BY TYPE							KNOWN FLARE	HALE REGION
	START	END	MAX	IMP		SWF	SCNA	SEA	SPA	LF-SPA	SES	SFD		
01	0032E	0250	0042	2+	5	2			1		4		0035	18188
01	0340	0418D	0350	1-	3				1		1		0340E	18184
01	0518	0624	0525	1	3				1		4		0517	18189
01	0727	0805	0737	1-	3				1		1		0727	18184
01	0832	0934	0842	1	3				1		5		0829	18176
01	0918	0945	0925	1	3			1			1		0915	18191
01	1402	1538	1412	1-	5	2		3	1		12		1353	18188
01	1534	1645	1543	1+	3						11		1528	18176
01	1936	2015	1945	2	3	1					8		1937	18176
01	2110	2200	2109	1-	3	1			1		5		*	
01	2306	0010	2318	1-	1				1				NF	
02	0026	0144	0038	1-	1				1				0034E	18176
02	0824	0856	0833	1-	3				1		2		0824	18173
02	0933	1016	0946	1-	3				1		1		0931	18188
02	1036	1145	1046	1-	5			2	1		1		1029	18175
02	1205	1315	1214	1-	5	1		2	1		2		1204	18188
02	1400	1434	1413	1-	5	2			1		2		*	
02	1645	1715	1654	1	3						3		1642	18188
02	1802	1818	1808	1-	3				1		8		1759	18176
02	1844	1930	1857	1	3	1			1		9		NF	
02	2031	2108	2049	1-	3	1			1		6		2030	18180
02	2156	2248	2206	1-	3				1		4		*	
02	2217	2246	2230	1-	3				1		3		2219	18189
02	2256	2350	2312	1	3				1		4		NF	
02	2350	0038	0005	1-	1				1				NF	
03	0057	0521	0120	3	1				1				NF	
03	0103	0245D	0125	3+	3	1			1		4		0105E	18175
03	0245E	0315D	0257	1	1				1				NF	
03	0315E	0417D	0323	2+	3				1		4		NF	
03	0418	0440	0427	1-	1				1				0416	18188
03	0626E	0802	0636	2	5			1	2		5		0629E	18176
03	0819	0909	0830	1	5				1		6		0817E	18187
03	0909	1000	0915	1+	5			1	1		6		0909	18184
03	1150	1302	1200	1+	5	1		1	1		2		*	
03	1318	1400	1326	1-	5	1		2	1		6		1319	18186
03	1524	1609	1534	1-	5				1		12		*	
03	1653	1730	1704	2+	3						16		1649	18176
03	1735	1748	1744	1+	3						12		1731	18192
03	1749	1830	1753	1+	3	1					8		1746	18201
03	2023	2045	2030	2+	5	1			1		15		2011	18184
03	2334	2358	2341	1-	1				1				2346F	18189
04	0006	0041D	0016	1-	1				1				NF	
04	0041E	0155	0047	1	3			1	2		3		0038	18201
04	0603E	0727	0618	2+	3				2		2		0602	No data
04	0754	0830	0805	1-	3				1		2		NF	
04	0829	0902	0841	1-	3			1			2		0829	No data
04	1330	1439	1341	1-	5	1		3	1		7		1326	No data
04	1542	1600	1545	1-	3						7		1540	No data
04	1717	1740	1724	1-	3						11		*	
04	1753	1815	1759	1-	3						5		*	
04	1823	1845	1829	1-	3	1					12		NF	
04	1900	2000	1909	2+	5	1			1		13		1850	No data
04	2040	2207	2046	1	5	1					13		2038	No data
05	0129	0215D	0134	1	3				2				0130	No data
05	0313E	0403	0321	1+	1				1				0315E	No data
05	0753E	0903	0809	1	3				1		1		*	
05	0904	1038	0915	3+	5	2		4	1		6		0904	No data
05	1154	1218	1200	1-	3			1	1		1		1153	No data
05	1457	1519	1503	1	3			2					1454	No data
05	1538	1615	1553	1	3						5		*	
05	1632	1715	1642	2	3	1					9		NF	
05	1752	1831	1805	1	3						10		1751	No data
05	1832	1900	1847	1	3						4		NF	
05	2251	2343	2308	1-	3				1		1		*	
05	2349	0041	2356	1-	1				1				NF	
06	0259	0317D	0307	1-	1				1				NF	
06	0553	0736	0613	2+	3		1		2		3		NF	
06	0750	0856	0804	1	5				1		4		NF	
06	1107	1143	1112	1-	5			3	1		1		*	
06	1224	1257	1230	1-	3				1		3		*	

SUDDEN IONOSPHERIC DISTURBANCES

FEBRUARY 1982

DAY	UNIVERSAL TIME START	END	MAX	IMP	WIDE SPREAD INDEX	NUMBER OF STATION REPORTS BY TYPE SWF	SCNA	SEA	SPA	LF-SPA	SES	SFD	KNOWN FLARE	HALE REGION
06	1333	1414	1338	1-	5			3	1		8		*	
06	1425	1433	1426	1	3			1			3		*	
06	1534	1555	1542	1	5			2			12		NF	
06	1730	1800	1736	2+	3	1					13		1720	No data
06	1755	1807	1759	1-	3						10		1753	No data
06	1817	1840	1823	1-	3						11		1817	No data
06	2052	2252	2106	2+	5	2			1		14		2051	No data
06	2353	0202D	0004	3+	5	1			1		3		NF	
07	0202E	0314	0227	1-	1				1				0207	18189
07	0326	0444	0340	1	3				2		3		0323	18176
07	0502	0544D	0514	1-	3				2		2		0500	18189
07	0544E	0642	0548	1-	1				1				0545E	18189
07	0802	0830	0815	1-	3			1			3		0803E	18204
07	1042	1109	1049	1-	3				1		1		1038	18204
07	1252	1443	1300	1	5	3		4	1		5		1251	18176
07	1655	1720	1706	1	3						4		NF	
07	2049	2234	2108	2+	5	2			1		14		NF	
08	0147	0238	0155	1	3	1			1				0147E	No data
08	0241	0343	0248	2	3	1			1				0240	No data
08	0805	0927	0811	1	5			1	1		4		0808E	No data
08	1012	1130	1027	1	3				1		3		*	
08	1248	1427	1257	1	5	3		3	1		7		*	
08	1406	1434	1410	1-	5	2		3			4		*	
08	1900	1930	1906	1+	3	1					14		*	
08	2019	2046	2028	1-	5	1			1		10		NF	
09	0045	0057	0053	1	3				2		2		0043	18201
09	0141	0250	0149	1+	3			1	1		3		0140	18201
09	0336	0405D	0346	3+	3	1			1		4		0336E	18201
09	0405E	0652	0413	3+	3	1			1		4		0410E	18199
09	0437E	0450	0443	1	3	1					4		NF	
09	0712	0810	0723	1	5				2		5		0712	18201
09	0921	1040	0930	3+	5	2		3	1		5		*	
09	1107	1216	1117	1	5	2		2	1		2		1106E	18204
09	1355	1510	1414	2	5	3		3			5		1355	18201
09	1706	1745	1715	2	3						6		*	
09	1954	2046	2014	1-	3				1		5		*	
09	2240	2322	2257	1-	3				1		3		*	
10	0054	0228D	0106	2+	5	2		1	2		4		0056E	No data
10	0228E	0309D	0238	1-	3	1			1				0228	No data
10	0309	0343D	0316	2	3	1			1		2		0308	No data
10	0344	0415	0353	1+	3				1		1		*	
10	0623	0740	0641	1	3			1	2		2		*	
10	0847	0910	0852	1-	3			1	1				0846	No data
10	0945	1022	0950	1-	3			1	1				0943	No data
10	1413	1430	1416	1	3						3		1413	No data
10	1600	1630	1607	1-	3						5		1600	No data
10	1848	1945	1857	3	3	1					13		1847	No data
10	2000	2015	2007	1+	3	1					13		2000	No data
10	2215	2250	2221	1-	3				1		3		2214	No data
11	0057	0125	0107	1-	3				2		1		0056E	No data
11	0834	0908	0844	1-	3				1		1		NF	
11	1210	1256	1215	1-	5	1		3	1		1		1209	No data
11	1342	1353	1405	1	5	1		3	1		6		1337	No data
11	1430	1545	1440	1	3				1		2		1426E	No data
11	1613	1635	1615	1-	3				1		7		1610E	No data
11	1823	1935	1843	1-	3				1		8		*	
11	1920	1940	1923	1-	3						6		*	
11	2033	2051	2038	1-	3						10		2031	No data
11	2352	0040	2356	1-	3				2				2351	No data
12	0549	0630	0555	1-	3				2		3		0545	No data
12	1705	1830	1717	2	3				1		9		*	
12	2126	2327	2146	2+	5	2			2		11		*	
13	0434	0510	0443	1-	1				1				0436E	18210
13	1932	2000	1938	1-	3						11		1927	18201
13	2030	2125	2036	2	3						3		*	
13	2053	2154	2101	1	5	1			2		11		2053	18216
13	2152	2230	2208	2	3						3		NF	

SUDDEN IONOSPHERIC DISTURBANCES

FEBRUARY 1982

DAY	UNIVERSAL TIME START	END	MAX	IMP	WIDE SPREAD INDEX	NUMBER OF STATION REPORTS BY TYPE SWF	SCNA	SEA	SPA	LF-SPA	SES	SFD	KNOWN FLARE	HALE REGION
14	0140	0314	0150	2	5	1		1	2		4		0140	18217
14	0342	0517	0349	2	5	1		1	1		4		0341	18201
14	0813	0910	0817	1-	3				2		2		*	
14	0940	1040	0944	2+	5	2			2		4		0940	18201
14	1148	1214	1151	1-	3				1		2		*	
14	1730	1745	1735	1-	3						11		1731	18216
14	2001	2100	2015	2+	3						5		2008	18204
14	2015	2145	2037	1	3				1		12		2016	18205
14	2022	2153	2054	1	3	1			1				NF	
15	0323	0448	0336	2	3	1			1				0325E	18216
15	0720	0836	0730	1	3				1		1		0719	18210
15	1145	1155	1147	1-	1						1		NF	
16	0426	0514	0444	1-	1				1				0427E	18220
16	0755	0835	0759	1-	3				1		1		0751	18216
16	1638	1750	1646	1-	1				1		1		1636E	18216
16	1858	1936	1907	2	3				1		9		NF	
17	0746	0844	0759	1-	3				1		1		0747	18220
17	0958	1102	1006	1	5	3		4	1		2		*	
17	1945	2015	1949	1-	3				2		1		1943	18220
17	2133	2215	2148	2+	3						7		*	
17	2142	2235	2150	1-	3	1					1		2151E	18216
17	2326	0011	2337	1-	3	1			2		3		2326	18220
18	0033	0100	0040	1	3	1			2		4		0034E	No data
18	0446	0608	0504	2	3	1		1	2		4		0448E	No data
18	0902	1010	0910	2+	5	2		1	1		3		0904E	No data
18	1305	1500	1330	2+	5	2		4	2		5		1305	No data
18	2303	2322	2309	1-	3	1			1		2		2301	No data
18	2331	0122	2342	1	3	2			1		3		2331	No data
19	0235	0256	0240	1-	1				1				0237	18216
19	0429	0446	0438	1-	1				1				*	
19	0450	0547	0459	1	3	1			1		2		0452E	18216
19	0555	0648	0602	1-	3				1		1		0558	18216
19	1325	1530	1352	2+	5	1		3	2		4		1325	18216
19	1531	1605	1535	1-	3			1	1				1523	18216
19	1902	2005	1917	1-	3				1		2		1903	18216
20	0351	0419	0358	1-	1				1				0353	18221
20	0723	0802	0732	1-	3				1		3		0728E	18216
20	0920	1208	0939	3	5	2		3	1		5		0915	18216
20	1300	1345	1315	1-	3			1	1				1303	18224
20	1724	1740	1730	1-	3				1		10		NF	
20	1800	1945	1815	1-	3	1			1		11		1757	18226
20	2158	2257	2210	1-	3	1			1				2156	18216
21	0122	0252	0144	1	3	1			2		3		0124	18216
21	0844	0910	0855	1	3			2					NF	
21	1420	1500	1431	1-	3			2	1				NF	
21	1854	1915	1900	1-	3						5		1852	18216
21	2104	2200	2112	1-	3				1		5		NF	
22	0911	0950	0917	1-	3				1		1		0911	18216
22	1135	1200	1140	1-	3				1		2		*	
22	1210	1325	1230	1-	3	1		2	1				*	
23	0313	0442	0323	2	3	1			2		3		0311	No data
23	0512	0537D	0520	1	3				2		4		NF	
23	0537E	0840	0600	2	1				1				NF	
23	0923	1024	0937	1+	3	1		2	1		2		NF	
24	0635	0915	0702	3+	5	1		1	2		5		*	
24	1133	1230	1152	1-	5			1	1		2		*	
24	1423	1517	1443	2+	3						3		*	
24	1451	1540	1458	1-	5			1	1		6		NF	
24	1553	1615	1557	1-	5				1		10		1552	No data
24	1610	1632	1622	1-	3				1		1		NF	
24	1634	1730	1640	1-	3				1		3		1633	No data
24	1817	1835	1823	1-	3						4		NF	

SUDDEN IONOSPHERIC DISTURBANCES

FEBRUARY 1982

DAY	UNIVERSAL TIME START	END	MAX	IMP	WIDE SPREAD INDEX	NUMBER OF STATION REPORTS BY TYPE SWF	SCNA	SEA	SPA	LF-SPA	SES	SFD	KNOWN FLARE	HALE REGION
25	0200	0240	0206	1-	1				1				NF	
25	0339	0430	0354	1	1				1				0339	No data
25	0722	0824	0730	1-	3				1		2		0720	No data
25	1234	1315	1239	1-	3			1	1		2		1230	No data
25	1608	1635	1610	1-	3				1		4		1606	No data
25	1853	1908	1900	1-	3	1			1		6		1855	No data
26	0304	0506	0330	3	3			1	1				0302	18240
26	0835	0915	0842	1-	3				1		2		NF	
26	1518	1540	1523	1-	3						5		1517	18236
26	1735	1805	1738	1-	3				1		4		1736	18235
26	2045	2248	2115	3+	3						4		*	
26	2215	2245	2225	1	3						4		*	
27	0203	0244	0214	1-	1				1				NF	
27	0835	0916	0840	1-	3				1		1		0834	18241
27	1137	1210	1139	1-	3				1		1		1136	18241
27	1929	2030	1938	1-	3				1		11		1929	18241
27	2140	2210	2151	1	3						3		*	
28	0103	0136	0113	1-	3				2				NF	
28	0440	05510	0502	2+	3			1	2		2		0440	18250
28	0553E	06250	0556	1-	1				1				0551	18250
28	0625	0723	0632	1	3				1		4		0625	18250
28	0837	0911	0844	1-	3				1		1		0848E	18226
28	2040	2120	2052	1-	3				1		5		2039	18229

DATE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
REGION																															
18173		1																													
18175		1	1																												
18176	3	2	2				2																								
18180		1																													
18184	2		2																												
18186			1																												
18187			1																												
18188	2	3	1																												
18189	1	1	1				3																								
18191	1																														
18192			1																												
18199									1																						
18201			1	1					5				1	2																	
18204							2		1					1																	
18205														1																	
18210													1		1																
18216													1	1	1	2	1		6	3	2	1									
18217														1																	
18220																1	3														
18221																				1											
18224																				1											
18226																				1								1			
18229																												1			
18235																										1					
18236																										1					
18240																										1					
18241																											3				
18250																												3			
NO FLARE	1	3	3	3	3	5	2	1	1		1		1	1	1	1				1	3		3	3	1	1	1	1			
NO FLARE PATROL	1	2	2	2	3	4		4	4	2	2	2	1	2			2		1			2		3		2	1			
NO DATA				6	6	4		3		10	7	1						6					1	2	5					
EVENT TOTALS	11	14	16	12	12	13	9	8	12	12	10	3	5	9	3	4	6	6	7	7	5	3	4	8	6	6	5	6			

OBSERVATORIES REPORTING FOR FEBRUARY 1982:

Ayrshire, Scotland (AY)	SES	Maui, Hawaii, USA (MI)	SWF
Darmstadt, GFR (DA)	SWF	Mayfield Village, Ohio, USA (A28)	SES
Durham, North Carolina, USA (A54)	SES	Missoula, Montana, USA (A31)	SES, SWF
Edenvale, South Africa (A52)	SES	Panska Ves, Czechoslovakia (PU)	SEA, SWF
Eugene, Oregon, USA (A57)	SES	Portage, Michigan, USA (A51)	SES
Eureka, Montana, USA (A55)	SES	Sao Paulo, Brasil (UM)	SES, SPA
Frenchtown, Montana, USA (A56)	SES	Sofia, Bulgaria (SF)	SES
Glenorchy, Tasmania, Australia (GN)	SEA	Somerton, United Kingdom (SO)	SWF
Hiraiso, Japan (HI)	SWF	St. Cloud, Minnesota, USA (SC)	SES
Hobart, Tasmania, Australia (A43)	SES	Tavares, Florida, USA (A49)	SES
Hobart, Tasmania, Australia (TA)	SEA	Thornwood, New York, USA (A48)	SES
Houston, Texas, USA (A50)	SES	Trenton, New Jersey, USA (NJ)	SES
Inubo, Japan (IN)	SPA	Tucson, Arizona, USA (A9)	SES
Kasugai, Japan (KA)	SPA	Upice, Czechoslovakia (UI)	SEA
Lake Hiawatha, New Jersey, USA (A32)	SES	Valley Cottage, New York, USA (A1)	SES
Latrobe, Pennsylvania, USA (A19)	SES	Vsetin, Czechoslovakia (VS)	SEA
Louisville, Kentucky, USA (A26)	SES	Zilina, Czechoslovakia (ZL)	SEA

* No Flare Patrol
NF No Flare reported
Observations are not necessarily continuous for each reporting station.

PIONEER XII (VENUS ORBITER)
Interplanetary Magnetic Field Magnitudes

MAGNETIC FIELD MAGNITUDES
FEBRUARY 1982

DAY	TIME	BMAG
1	13:42:20	34.47
2	13:41:00	27.50
3	13:41:10	11.83
4	13:40:50	12.70
5	13:41:10	17.08
6	13:41:20	8.83
7	13:41:30	21.33
8	13:41:20	14.20
9	13:40:40	21.19
10	13:41:00	17.19
11	13:40:40	17.05
12	13:40:40	14.27
13	13:39:40	12.59
14	13:40:50	12.12
15	13:41:10	10.92
16	13:41:00	9.21
17	13:39:30	32.66
18	13:40:00	12.72
19	13:39:20	9.47
20	13:39:10	7.59
21	13:39:40	12.77
22	13:39:20	18.04
23	13:39:40	12.44
24	13:39:10	10.69
25	13:39:20	9.70
26	13:39:00	14.67
27	13:39:20	12.84
28	13:39:30	14.10

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

FEBRUARY 1982

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
01			CULG				0000	0548.5	1				IIIS
	0000	0745	CULG	0000	0059	1							IN
			CULG				0004.5	0537	2	0004.5	0730	1	IIIN
			CULG	0059	0745	1	0000	0745	1				IS,DC
			CULG				0107.5	0738	1				RSDP,N
			CULG	0458	0459	2	0458	0459	2	0458.5		1	IIIG
			CULG	0518.5	0519.5	2	0518.5	0519.5	2	0518.5	0519.5	1	IIIG
			CULG				0548.5	0745	2				IIIS
			CULG	0713.5	0730	3	0713.5	0730	3				IIIG,V,N
			WEIS				0733	1543	2				IS
	0703	1543	WEIS				0733	1406	2				IIIS
			WEIS				0733	0817	2				CONT
			WEIS				0958.6	0959.9	3				III GG
			WEIS				1220.2	1221.3	2				DCIM
			WEIS				1224.7	1225.0	2				DCIM,RS
			WEIS				1238.2	1240.3	2				V
			WEIS				1330	1543	2				CONT
	1408	2400	HARV				1408	1412	3				UNCL
			HARV				1413	2400	3	1615	2120	3	IC
			HARV	1414	2034	1							IN
			WEIS				1415	1420	2				CONT
			HARV	1948	1949	2							IIIG
			HARV	2009	2012	2	2009	2012	2				IIIG
			HARV	2038		1	2038	2351	2				IIIN
			CULG				2045.5	2400	2				IIIS
	2045	2400	CULG	2045.5	2400	1	2045.5	2400	2				IS,C
			CULG							2047	2400	1	IIIN
			HARV	2205	2207	2	2205	2400	2				DCIM
02	0000	0745	CULG				0000	0745	2				IS,C,DC
			CULG	0000	0745	1							CONT
			CULG				0000	0745	2	0000	0447	1	IIIN
			CULG				0000	0745	1				IIIS
	0749	1528	WEIS				0749	1140	2				CONT
			WEIS				0752	1528	3				IS
			WEIS				0829	1513	2				IIIS
			WEIS				1219.1	1220.1	3				IIIG
			WEIS				1310	1528	2				CONT
	1407	2400	HARV				1407	2400	3				IC
			HARV	1407	2400	1							IN
			HARV	1508	2153	1	1558	2339	2	1800	2216	2	IIIN
			HARV	1623	1624	2	1623	1624	2				IIIG
			HARV	1903	1904	2	1903	1904	2				IIIG
			HARV	1909	1911	2	1909		1				IIIG
			PALE				1912.0	0405.0	1				CONT
			HARV				2007	2008	3	2007	2008	2	IIIG
			SGMR				2022.0	2023.1	1				G
			HARV	2027	2049	2	2027	2031	3	2028	2030	2	IIIGG
			CULG				2048	2140	1				IIIS
			CULG				2048	2225	2				IS,C,DC
	2048	2400	CULG	2048	2116	1							CONT
			CULG	2048	2400	1							IN
			CULG	2109	2109.5	1	2109.5	2110	2				IIIG
			HARV				2109	2113	2	2109	2113	2	IIIGG
			CULG	2109.5	2323.5	1	2058	2133	2				IIIN
			CULG	2118	2334.5	1							DCIM,N
			HARV	2125	2126	3							IIIB
			LEAR				2223.0	0113.1	1				CONT
			CULG				2225	2400	1				IS,C,DC
			CULG				2235	2339					IIIN,W
			HARV				2250	2252	3	2250	2252	1	IIIGG
			LEAR				2250.5	2252.7	2				III
			CULG	2250.5	2253	2	2250.5	2253	2				IIIGG
03	0000	0745	CULG				0000	0745.5	1				IS,C,DC
			CULG	0000	0745.5	1							IN
			CULG				0009.5	0112					IIIN,W

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

FEBRUARY 1982

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
03			CULG	0105.5	0129	1							CONT
			CULG							0111	0143	1	SWF
			CULG				0111	0113	2				POSSII
			CULG				0113	0119	3	0113.5	0119	2	IIIGG
			LEAR				0113.1	0346.2	2			IV	
			PALE				0113.8	0200.8	2			IV	
			LEAR				0118.1	0127.8	3			II	
			CULG				0119	0143.5	3			II	
			PALE				0121.1	0126.0	3			II	
			CULG				0125	0350	1			IV	
			CULG				0140	0745.5					IIIS,W
			CULG				0145.5	0348	2	0145.5	0348	2	IIIS
			PALE				0200.8	0202.2	2				V
			LEAR				0346.3	0753.6	1				CONT
			CULG				0546	0702	1				IIIN
			CULG				0712.5	0745.5	2				IIIS,U
	1110	1545	WEIS				0731	1251	2				IIIN
	0731	0913	WEIS				0731	1132	2				CONT
			WEIS				0731	1545	2				IS
			LEAR				0753.6	0755.5	2				CONT
	0755	1535	BLEN				0755 E	1535 D	2				I,DC
			LEAR				0755.5	1052.0	1				CONT
			BLEN	0817.1	0817.9	1							DCIM
			BLEN	0850.8	0850.8	3	0850.8	0850.8	3				IIIB
			BLEN	0930.0	0934.4	2							DCIM
			BLEN	1029.3	1033.4	3	1033.1	1033.4	3				DCIM
			BLEN				1033.1	1033.4	3				IIIG
			BLEN	1150.2	1154.7	3							DCIM
			BLEN	1155.6	1157.2	3						II	
			BLEN				1156.7	1156.8	2				III
			BLEN				1258.4	1258.6	2				IIIG
			BLEN				1324.2	1324.3	2				III
			BLEN	1341.3	1342.8	2							DCIM
	1407	2400	HARV				1407	1940	2				IC
			HARV	1423	2315	1							IN
			HARV				1439	2106	2				IIIN
			HARV	1650	1653	2	1650	1653	2	1651	1652	2	IIIGG,V,Z
			HARV				1656	1658	2				UNCL
			HARV	1707	1710	1	1707	1710	2				IIIGG
			HARV				1940	2400	2				IN
			HARV	1952	1957	2	1952	1957	2				IIIGG
			HARV	2004	2016	2	2004	2016	3				IIIG
			PALE				2022.9	2030.8	2				G
			HARV	2023	2038	1	2023	2038	3	2023	2034	2	IIIGG,V
			HARV				2029	2030	3				UNCL
			HARV	2044	2054	2	2044	2054	2				IIIGG
			CULG				2046	2330	1				IS
	2046	2400	CULG	2046	2400	1							IN
			CULG	2050.5	2051	2	2050.5	2051	1				IIIB
			CULG	2053.5	2109	1							IIIN
			CULG				2058.5	2105					IIIN,W
			CULG				2102	2110.5	2				IIIG,U,N
			PALE				2102.0	2109.3	2				G
			HARV	2106	2107	1	2102	2110	2	2102	2110	2	IIIGG
			CULG				2112	2114	1				POSSII
			CULG				2244		1				IIIB
			CULG				2330	2400	1				IN
04	0000	0746	CULG				0000	0210					IN,W
			CULG	0000	0741	1	0210	0347	1				IN,DC
			CULG				0216	0735					IIIN,W
			CULG				0218.5	0219.5	2	0219	0219.5	2	IIIG,V
			CULG				0316.5	0317	2	0316.5	0317	2	IIIG
			CULG				0521	0734.5	1				IIIN
			BLEN	0728.6	0802.0	2							DCIM
			WEIS				0730	1513	2				IIIN
	0755	1350	BLEN				0755 E	1350 D					I,DC
			BLEN				0759.8	0806.6	2				III,U
			WEIS				0812	1228	1				IS
			BLEN				0850.9	0853.4	2				IIIG

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

FEBRUARY 1982

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
04			BLEN	0920.3	0920.6	1							IIIG
			BLEN	1003.1	1011.4	2	1003.1	1013.1	2				IIIGG
			BLEN	1011.5	1011.9	1							DCIM
			BLEN	1106.3	1106.4	3							IIIG
			BLEN	1115.5	1115.9	2							IIIG
			BLEN	1145.5	1145.8	2	1141.3	1145.8	2				IIIGG
			WEIS				1237.3	1237.8	2				IIIG
			BLEN	1237.4	1237.7	2	1237.4	1237.7	2				III
			BLEN	1323.0	1324.0	2	1323.0	1324.0	2				DCIM
			BLEN				1323.2	1324.8	2				IIIG
			BLEN				1325.1	1329.0	3			II	
			WEIS				1325.6	1326.3	3			II	HARM
			BLEN	1328.3	1340.0	2	1329.2	1340.0	2			IV	
			WEIS	1331.2	1339.2	2							DCIM
			WEIS				1332.3	1338.0	3				IIIGG
	1407	2400	HARV				1407	1631	2				I
			HARV				1413	2332	2	1754	2131	2	IIIN
			HARV	1417	2400	1							IN
	0730	1546	WEIS				1430	1539	2				IS
			HARV				1432	1433	3				IIIG
			HARV	1539	1547	2	1539	1548	3	1539	1548	2	IIIGG,V
			WEIS				1539.2	1542.5	2				IIIGG
			WEIS	1540.7	1543.2	2						IV	
			HARV				1543	1516	3			II	
			HARV				1624	1625	2				IIIG
			HARV				1631	2115	2				IN
			HARV				1709	1710	2				IIIG
			HARV				1832	1833	2	1832	1833	2	IIIG
			HARV	1857	1908	2	1856	1935	2	1856	1935	2	IIIS
			HARV	1858	1909	2	1858	1909	2			IV	
			HARV				1942	2004	2	1942	2004	2	IIIGG
			HARV	2018		2							IIIG
			HARV				2026	2028	3	2026	2028	2	IIIG,U
	2046	2400	CULG				2046	2400	1				IS
			CULG				2046.5	2400					IIIN,W
			HARV				2115	2400	2				I
			CULG				2122	2357.5	1				IIIN
			CULG	2145	2400	1							IN
			HARV				2258	2302	2				IIIGG
			HARV				2309	2311	2				IIIGG,U
			CULG				2310	2310.5	2				IIIG
05			CULG	0000	0721	1							IN,C
	0000	0746	CULG				0000	0045	1				SCINT
			CULG				0000	0612					IIIN,W
			CULG				0000	0055	1				IS,DC
			CULG				0117.5	0118.5	3	0117.5	0118.5	3	IIIG,V
			CULG				0236.5	0311.5	2	0236.5	0311	1	IIIN
			CULG				0248	0252	1				IIIG
			CULG				0422	0423	1				IIIG
			CULG				0612	0612.5	1				IIIB,Z
	0724	1421	WEIS				0751.2	0752.2	2				DCIM
			WEIS				0759.7	0800.0	2				DCIM
			WEIS				0847	1546	2				IN
			WEIS	0904.2	0906.7	3							DCIM
			WEIS				0905.4	0908.3	3				IIIGG
			WEIS				0907.2	0922.0	3			II	HARM
	1543	1547	WEIS				1011	1544	2				IIIN
			WEIS				1053.1	1054.7	3				IIIG
			WEIS				1100.7	1101.9	3				IIIGG
	1115	1540	BLEN				1115 E	1540 D	2				I,DC
			BLEN				1253.0	1301.1	2				IIIGG
			WEIS				1253.0	1253.4	3				IIIG
			WEIS				1300.2	1301.3	2				IIIG
			BLEN	1341.6	1345.8	2							IIIGG
	1407	2400	HARV				1407	2400	2				I
			HARV	1423	1850	1							IN
			BLEN				1428.8	1432.3	2				IIIG
			HARV				1429	1432	2				IIIGG
			HARV	1449	1450	2	1449	1450	2				IIIG

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DAY	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS: DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
05			BLEN	1449.6	1449.8	2	1449.6	1449.8	2				III,U
			BLEN	1505.1	1506.3	2							DCIM
			HARV				1533	2317	2				IIIN
			BLEN	1537.7	1538.4	1							IIIG
			HARV	1538	1539	1							IIIG
	1543	1547	WEIS										
			HARV	1659	1700	1	1659	1700	3				IIIG,U
			HARV				1725	1726	2	1725	1726	1	IIIG
			HARV	1752	1758	2							IIIGG
			CULG				2046	2400	1				IS
	2046	2400	CULG	2046	2400	1							IN
			CULG				2108.5	2109	1	2108.5	2109	1	IIIG
			HARV	2201	2347	1							IN
			CULG				2211	2344.5					IIIN,W
			CULG				2234	2316.5	1				IIIN
			CULG	2236	2236.5	1							DCIM
			HARV	2236		1	2234	2237	2				IIIGG,U
			HARV				2251	2255	2				IIIGG
			HARV				2257	2306	3				IIIGG
			CULG				2257	2259	2				IIIGG
			CULG				2259.5	2303	1				IIIGG
			HARV	2357		2							IIIG
06			CULG				0000	0746					IN,W
	0000	0746	CULG	0000	0746	1							IN
			CULG				0014	0739.5					IIIN,W
			CULG				0023.5	0549	1				DC,N
			CULG				0303.5		2	0303.5		1	IIIB
			CULG				0427	0444.5	1				IIIN
			CULG				0432.5		2	0432.5		1	IIIB
			CULG				0626	0632.5	1				IIIN
			CULG	0631	0631.5	1							DCIM
			CULG				0639.5		2				IIIB
	0723	1550	WEIS				0728	1550	2				IN
			WEIS				0738	1544	2				IIIN
	0750	1540	BLEN				0750 E	1540 D	1				I
			BLEN	0816.9	0816.9	2							III
			BLEN	0929.2	0929.3	2							U
			BLEN	0939.8	0943.7	2							IIIG
			BLEN	1030.7	1033.6	2	1030.7	1033.6	2				III,RS
			BLEN	1107.4	1108.5	2							DCIM
			BLEN	1223.8	1225.4	3	1223.8	1225.6	3				IIIGG
			WEIS				1224.0	1225.6	3				IIIGG,RSU
			BLEN				1340.7	1342.5	1				IIIG
	1408	2400	HARV				1408	2400	2				I
			BLEN				1412.7	1415.3	2				III
			HARV	1419	2333	1							INW
			WEIS				1423.1	1426.2	3				IIIGGDCIM
			HARV	1424	1425	3	1422	1425	3				IIIGG,V
			BLEN	1424.3	1426.5	2	1423.0	1426.2	3				IIIGG,V
			HARV				1441	1450	2				IIIGG
			BLEN				1441.3	1450.5	2				IIIG
			HARV				1503	1506	3				I,DC
			HARV				1527	2203	2				IIIN
			HARV	1532	1534	2	1532	1534	2				IIIGG
			BLEN	1532.0	1540.0	2	1527.5	1539.5					IIIGG
			WEIS				1532.7	1535.4	3				IIIGGDCIM
			SGMR				1552.0	1552.8	1				III
			HARV	1622	1624	2	1622	1624	2				IIIGG
			HARV	1638		1	1634	1638	2				IIIG
			HARV				1646	1647	2	1646	1647	2	IIIG
			HARV	1702	1703	2	1702	1703	3				IIIGG
			HARV	1728	1729	2	1728	1729	3				IIIGG
			HARV	1752	1759		1756	1758	2				IIIGG
			HARV				1807	1811	2	1807	1811	2	IIIG
			HARV				1816	1822	3				IIIGG
			HARV	1948	1949	3	1948	1950	3	1948	1950	2	IIIGG,V
			PALE				1948.5	1949.6	2				V
			SGMR				1948.6	1949.3	2				V
			HARV				1959	2003	2	2002	2003	2	IIIGG

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				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
06	2046	2400	CULG				2046	2400	1				IS
			CULG				2056	2357					IIIN,W
			HARV	2056	2058	2	2056	2106	2	2056	2106	2	IIIGG,V
			CULG				2056	2057.5	2				IIIB,V
			PALE				2056.0	2104.3	2				G
			CULG				2058	2233	2	2058.5	2356.5	2	IIIN
			HARV	2059	2104	2						IV	
			CULG				2106	2229	1	2058	2232	1	IIIN
			HARV	2112	2115	3	2115		2				IIIG
			CULG	2120		1	0120		1				IIIB
			HARV	2154	2155	1	2154	2156	2	2154	2156	1	IIIG
			CULG				2154.5	2157	2	2154.5	2157	2	IIIG,V
			PALE				2154.5	2202.9	2				G
			HARV	2204	2205	2	2204	2205	2				IIIG
			HARV				2229	2232	2	2229	2232	1	IIIGG
			HARV				2254	2255	2				IIIG
			LEAR				2315.6	1050.0	1				CONT
			CULG				2345	2348	2	2345.5	2349.5	3	IIIG,V
			LEAR				2345.0	2348.3	2				III
			HARV	2355	2259	1	2355	2259	1				IV,DCIM
			LEAR				2355.1	0020.2	2			II	
			CULG							2358	2400	1	SWF
07			CULG				0000	0745	1				IS,DC
	0000	0745	CULG							0000	0006	1	SWF
			CULG				0007	0017	2				POSSII
			CULG				0009	0738.5	1	0009	0351.5	1	IIIN
			CULG				0019.5	0742.5					IIIN,W
			CULG				0033	0617	2	0033	0617	2	IIIN
			CULG	0157.5	0745	1							IN
			CULG	0544.5	0545	3	0544.5	0545.5	3				IIIG,U,V
			CULG				0600.5	0604	2	0601	0604	3	IIIG,V
			CULG				0701.5	0702	3	0701.5	0702	1	IIIG
	0725	1552	WEIS				0728	1552	2				IIIN
			WEIS				0730	1552	3				IS,DC
	0750	1540	BLEN				0750 E	1540 D	1				I
			BLEN	0842.3	0842.6	2							III,U
			BLEN	0849.7	0852.8	2							DCIM
			BLEN				0923.7	0925.7	2				IIIGG
			BLEN	0923.7	0927.5	2							DCIM
			WEIS	0923.7	0927.3	2							DCIM
			WEIS				0924.3	0925.6	2				IIIG
			BLEN	0933.3	0944.8	1	0933.3	0944.8	1				IIIG
			BLEN				1013.2	1018.8	2				IIIG
			WEIS				1013.4	1013.8	2				U
			WEIS				1013.5	1015.7	2				IIIG
			BLEN	1101.8	1102.0	1	1101.8	1102.0	2				IIIG
			BLEN				1218.8	1219.0	2				IIIG
			BLEN				1230.8	1235.9	3				IIIB
			WEIS				1235.7	1236.0	2				IIIB
			WEIS				1251.2	1257.6	2				IIIGG
			BLEN	1251.2	1253.2	3						IV	
			BLEN	1251.2	1253.8	2	1249.3	1253.2	3				IIIGG
			WEIS	1252.0	1257.0	2						IV	
			WEIS				1253.7	1258.3	2			II	
			BLEN	1253.8	1255.0	3	1254.3	1258.6	3			II	
			BLEN				1335.4	1344.8	2				IIIG
			BLEN				1340.8	1344.7	1				DCIM
			WEIS				1358.3	1359.3	2				IIIG
			BLEN				1358.4	1358.7	2				IIIG
	1408	2400	HARV	1408	2400	1	1408	2400	2				I
			HARV				1431	2258	2	1701	2219	2	IIIN
			HARV				1547	1548	3	1547	1548	2	IIIGG
			WEIS				1547.2	1548.7	2				
			HARV				1609		2				IIIG
			HARV				1749		3	1749		2	IIIG
			HARV				1845		2				IIIG
			HARV				1930	1933	2	1930	1934	2	IIIGG
			HARV				1947	1948	2				IIIG,U
			HARV	2054	2058	1	2054	2105	2	2055		1	IIIGG

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				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
07			HARV				2102	2107	3				II
	2113	2400	CULG	2113	2400	1	2113	2400	1				IS,DC
			CULG				2113.5	2258.5	1				IIIN
			CULG				2123	2227					IIIN,W
			CULG				2123.5		2				IIIB
			CULG				2219		2				IIIB
			HARV				2252	2256	3	2252	2256	2	IIIGG
			CULG				2252.5	2256	3	2252.5	2257	2	IIIGG
			LEAR				2252.7	2256.1	2				III
			LEAR				2305.6	0752.5	1				CONT
			HARV	2351		2							IIIG
08	0000	0746	CULG	0000	0035	1							IS
			LEAR				0006.1	0006.8	2				III
			CULG	0011	0011.5	1							DCIM
			CULG				0011.5		2	0011.5		1	IIIB
			CULG				0027	0745		0103	0334		IIIN,W
			CULG	0035	0545	1	0000	0745	1				IN,DC
			CULG				0036	0037	3	0036	0037	3	IIIG,V
			PALE				0043.9	0056.3	2				GG
			LEAR				0129.8	0133.1	2				III
			CULG				0130	0131	1	0130	0132	1	IIIG,V
			CULG	0147.5	0152.5	1							DCIM
			CULG				0214	0716	1	0336	0338.5	1	IIIN
			CULG				0233	0234	2	0233	0234	1	IIIG
			LEAR				0233.2	0233.9	2				III
			LEAR				0241.0	0246.0	3				III
			CULG	0241.5	0245	2	0241	0245.5	3	0241	0245	3	IIIGG
			CULG	0327		1	0327	0327.5	2	0327	0327.5	2	IIIG
			LEAR				0327.0	0327.8	2				III
			CULG				0427		2	0427		2	IIIB
			LEAR				0630.0	0630.6	2				III
			LEAR				0647.9	0657.9	3				III
			CULG	0651	0714.5	2	0650.5	0715	3	0650.5	0711	2	IIIG,N
			LEAR				0710.5	0712.6	3				III
			LEAR				0712.9	0716.3	2				III
	0723	0922	WEIS				0722	1553	3				IS,DC
	0926	1356	WEIS				0734	1547	2				III
			LEAR				0752.6	1050.0	2				CONT
	1408	1553	WEIS				0803.7	0807.5	3				III/V
			LEAR				0803.8	0809.9	3				III
			BLEN	0804.2	0806.0	2							DCIM
	0745	1540	BLEN	0807.2	0820.3	2	0804.2	0820.3	3				IIIG,U
			WEIS				0807.6	0815.6	3				IIIGG
			BLEN	0836.6	0838.8	3							DCIM
			BLEN	0909.3	0909.4	2							DCIM
			BLEN				0936.2	0941.2	2				IIIG
			BLEN	1006.2	1007.5	1							DCIM
			BLEN				1036.2	1036.8	1				IIIG
			BLEN	1143.8	1150.4	2	1136.8	1150.4	2				IIIG
			WEIS				1221.5	1224.3	3				IIIG
			BLEN	1222.8	1223.4	2	1222.8	1223.4	2				IIIG
			WEIS				1246.7	1254.3	3				III/V
			WEIS	1247.6	1256.3	3							CONT
			BLEN	1247.6	1249.2	3	1247.6	1249.2	3				IIIG
			BLEN	1248.5	1255.5	2	1248.5	1255.5	2				IV
			SGMR				1248.8	1250.2	1				V
			SGMR				1248.8	1305.2	1				G
			BLEN				1249.9	1250.1	3				V
			BLEN				1250.4	1257.8	3				II
			WEIS				1250.5	1315.0	3				II HARM
			WEIS				1256.3	1258.2					III/V
			WEIS				1256.3	1258.2	2				III/V
			BLEN	1303.3	1304.8	3	1303.3	1308.3	3				IIIG,U
			WEIS				1304.6	1305.6	2				IIIG
			BLEN				1330	1540 D					I,N
			BLEN				1359.3	1407.3	2				IIIG
			SGMR				1400.0	1407.5	1				V
	1408	2400	HARV				1408	2400	2				I
			HARV				1453	1802	2	1729	1802	2	IIIN

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08			BLEN				1504.3	1505.5	2				IIIG
			WEIS				1504.4	1507.9	3				IIIG
			HARV	1505		1	1500	1508	3				IIIGG
			HARV				1602	1607	3				IIIGG
			HARV				1716	1717	2	1716	1717	2	IIIG
			PALE				1742.0	0409.0	1				CONT
			HARV				1744	1749	2	1745	1749	2	IIIGG
			HARV	1755	2353	1							IN
			HARV				1810	1815	3	1810	1815	2	IIIGG
			HARV				1831	1834	3				II
			HARV	1850	1857	1	1848	1857	2	1848	1852	2	IIIGG
			HARV				1901		2	1901		2	IIIG
			HARV	1952	1953	2	1953		2				IIIG
			HARV	2012	2013	2	2012	2014	2	2014		2	IIIG
	2046	2400	CULG	2056	2400	1	2050	2400	1				IS
			HARV	2121	2128	2	2121	2126	2				IIIGG
			HARV				2130		2				IIIG
			CULG				2131.5	2352.5		2307	2319		IIIN,W
			CULG				2152.5	2319.5	1				IIIN
			PALE				2306.8	2310.6	2				G
			CULG				2308	2319	2	2308.5	2319.5	1	IIIN
			LEAR				2309.9	2310.3	2				III
			LEAR				2309.9	2322.0	2				G
			CULG	2310	2310.5	2	2310	2310.5	3	2310	2310.5	2	IIIG
			HARV	2310		1	2305	2310	3				IIIGG
			HARV	2316	2317	2							IIIG
			HARV				2318	2319	2				IIIG
09	0000	0746	CULG				0000	0110	1				IS
			CULG	0000	0737	1							IN
			CULG				0007.5	0053	1	0007.5	0045	1	IIIN
			CULG				0044.5	0752.5	2	0046	0053	2	IIIN
			CULG				0052	0741					IIIN,W
			CULG				0056		3	0056		2	IIIB
			CULG				0110	0405					IN,W
			CULG				0257.5	0312	1				IS
			CULG				0338.5	0340	1				UNCLF
			CULG	0406.5	0413	2							UNCLF
			CULG				0406.5	0409.5	3	0406.5	0407.5	3	IIIG,V
			CULG							0408.5	0426	2	SWF
			CULG				0410	0411.5	1				POSSII
			CULG				0411.5	0530	1				IS,DC
			CULG	0441.5	0451.5	1	0436.5	0459	2	0439	0453.5	1	IIIG,V,N
			CULG				0523	0737	1				IIIN
			CULG				0528.5	0741					IIIN,W
			CULG				0701	0345	2				IIIN
			CULG	0711	0713	2	0711	0714.5	2				IIIG,V,Z
			WEIS				0721.3	0725.3	3				IIIGG
			WEIS				0729.5	0736.7	2				IIIGG
			WEIS				0746	1553	2				IN
	0721	1554	WEIS				0833	1550	2				IIIN
	0745	1540	BLEN				0917.9	0923.5	1				IIIGG,U
			BLEN				0923.8	0930.1	2				II
			BLEN	1042.8	1046.8	2	1042.8	1046.8	2				IIIG
			BLEN	1125.0	1125.6	2	1126.4	1127.8	1				IIIG
			BLEN	1331.3	1339.8	2	1331.3	1339.8	2				IIIG
			WEIS				1359.6	1403.6	2				IIIG
			BLEN	1401.5	1407.8	1	1401.5	1047.8	2				IIIG
			WEIS				1404.7	1408.4	2				DCIM,RS
	1408	2355	HARV				1408	1908	1				IN
	1408	2400	HARV				1408	2220	3				IC
			WEIS				1408.3	1414.0	2				II
			HARV				1410	1414	3				UNCL
			BLEN				1453.8	1454.3	2				III
			HARV				1454		1				IIIG
			BLEN				1520	1540 D	1				I
			HARV				1609	2335	2	1637	2109	2	IIIN
			HARV				1825	1826	2	1825	1826	2	IIIG
			HARV	1900	2339	1							IN
			HARV				1908	2355	2				I

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DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
09			HARV	2003	2005	3	2003	2005	3	2003	2005	2	IIIGG
			HARV	2005	2007	3	2005	2008	3				II
	2046	2400	CULG				2046	2400					IIIS,W
			CULG				2046	2400	1				IS,DC
			CULG				2047.5	2350.5	1				IIIN
			CULG				2048	2349	1				RSDP,N
			CULG	2049	2351.5	1							IN
			HARV				2236	2238	2				IIIGG
			HARV				2350	2355	3				IIIGG
			CULG				2351.5	2355	2	2352	2355	1	IIIGG
10	0000	0746	CULG				0000	0746					IS,DC
			CULG				0001	0135					IIIN,W
			LEAR				0043.8	0044.9	2				III
			CULG				0044	0045	2	0044	0045	1	IIIG,V
			CULG	0054	0135	2							CONT
			CULG				0054.5	0059.5	3	0055	0059.5	3	IIIGG,V
			LEAR				0054.5	0122.0	3				IV
			CULG				0055	0440	1				IV
			CULG				0059	0125	3	0103	0124.5	3	II H
			LEAR				0059.9	0109.2	3				II
			PALE				0121.0	0245.0	1				CONT
			LEAR				0122.1	0713.9	2				CONT
			CULG				0135	0420					IIIS,,W
			CULG	0136.5	0143	1							DCIM,N
			CULG				0137	0742	1				IIIN
			CULG	0217.5	0219	1							DC
			CULG				0247		2	0247		1	IIIG
			CULG				0420	0725					IIIN,W
			CULG	0430		2							IIIG
			CULG				0520.5		2				IIIB
			LEAR				0713.9	0840.5	1				CONT
	0719	0750	WEIS				0719	1557	3				IS
	1217	1557	WEIS				0719	1557	2				CONT
	0740	1542	BLEN	0753.8	0754.0	1							DCIM
			LEAR				0756.7	0756.9	2				III
			LEAR				0816.7	0817.2	2				III
			BLEN				0826.9	0827.3	1				III
			LEAR				0840.5	1049.0	2				CONT
	0858	1213	WEIS				0903	1553	2				IIIN
			WEIS				0903.6	0908.4	3				IIIGG
			LEAR				0905.4	0905.8	3				III
			BLEN	0907.8	0908.4	2	0905.4	0908.4	3				IIIGG
			BLEN	0919.1	0919.3	1							III
			BLEN	0931.0	0936.2	2							DCIM
			WEIS				0942.2	0946.7	3				IIIGG
			LEAR				0944.2	0946.7	3				III
			BLEN	0944.4	0946.4	2	0942.3	0946.4	3				IIIGG
			LEAR				0947.7	0954.0	2				II
			WEIS				0949.0	0956.8	2				II
			BLEN	1004.4	1005.6	1	1004.4	1005.6	1				IIIG
			BLEN	1200.4	1200.7	2	1200.4	1200.7	2				IIIG
			BLEN	1311.2	1326.3	2	1311.2	1326.3	3				IIIGG
			WEIS				1324.3	1326.5	3				IIIGG
			WEIS				1331.9	1334.3	3				IIIGG
			SGMR				1415.7	1417.3	1				V
			HARV	1420	2300	2	1430	2257	2	1552	2209	2	IIIN
			BLEN	1420.2	1428.2	2							IIIG
			SGMR				1435.2	1435.4	1				III
			HARV				1445	1447	2	1446	1447	1	IIIGG
			BLEN	1454.3	1454.5	2							IIIG
			HARV				1506	1507	2				IIIGG
			HARV				1523	1529	2				IIIGG
			BLEN	1525.4	1525.8	1	1525.4	1525.8	1				III
			SGMR				1600.2	1603.3	2				V
			HARV	1601	1604	2	1601	1604	3	1601	1604	2	IIIGG,V
			HARV	1608		1	1608	1636	3	1611	1631	2	IIIGG
			SGMR				1716.3	1717.5	1				V
			HARV				1717	1733	3	1717	1733	2	IIIGG,V
			PALE				1717.1	1718.3	1				V

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DAY	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS: DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
10			HARV	1742	1751	2	1741	1755	2	1741	1755	2	IIIGG
			PALE				1807.4	1808.2	1				III
			PALE				1814.0	1814.6	2				V
			PALE				1817.5	1817.8	1				III
			HARV	1819	1822	1	1800	1827	2	1800	1827	2	IIIGG
			SGMR				1830.5	1843.5	1				GG
			HARV	1831	1852	2	1831	1856	3	1831	1856	2	IIIGG
			PALE				1831.5	1837.8	2				G
			HARV	1900	1948	2	1900	1957	2	1902	1957	2	IIIGG
			PALE				1952.5	1952.8	1				III
			PALE				1955.3	1955.9	2				V
			HARV				1959	2003	3	1959	2003	3	IIIGG,V
			PALE				1959.1	2004.5	3			II	
			SGMR				1959.2	2001.5	3				V
			HARV	2000	2022	3	2000	2024	3			IV	
			SGMR				2003.8	2009.0	2			II	
			HARV				2004	2016	2	2004	2010	1	II,H
			PALE				2004.5	2015.0	2			IV	
			PALE				2015.0	0400.0	1				CONT
	2046	2400	CULG				2046.5	2400	1				IS,C
			CULG				2057.5	2351					IIIN,W
			HARV	2101	2102	1	2101	2104	2	2104		2	IIIG
			CULG	2101.5	2315.5	1	2104	2315.5	2				IIIN
			HARV				2116		2	2116		2	IIIG
			CULG				2129.5	2316.5	1				IIIN
			PALE				2129.9	2130.5	1				V
			HARV	2131	2132	1	2129	2134	3	2129	2134	2	IIIGG
			PALE				2133.7	2134.1	2				V
			CULG				2134		3				IIIB
			CULG	2143	2146	2	2144	2146.5	3				IIIGG
			PALE				2143.8	2147.1	2				V
			HARV	2144	2146	1	2143	2146	3	2144	2146	2	IIIGG
			HARV	2153	2155	2	2154	2155	1				IIIG
			CULG	2153	2154.5	3							IS
			HARV	2203		1	2201	2204	3	2203	2204	2	IIIGG
			PALE				2203.3	2204.3	2				V
			HARV				2220	2400	1				IN
			HARV	2225	2229	1	2224	2229	3	2225	2229	1	IIIGG
			LEAR				2245.5	1048.0	1				CONT
			LEAR				2313.1	2315.5	2				III
			HARV	2314	2315	1	2314	2316	3				IIIGG
			PALE				2314.3	2316.6	2				V
			CULG	2321	2337	1							DCIM,N
			HARV				2321		2				IIIG
			HARV	2337	2341	2							IIIG
			CULG	2340	2352.5	2							IN
			HARV	2352		1	2352		2				IIIG
11	0000	0716	CULG				0000	0237	1				IS
			CULG				0002.5	0722.5	1				IIIN
			CULG				0018	0724					IIIN,W
			CULG	0037	0705	1							IN
			CULG	0056.5	0716	1							DCIM,N
			CULG				0102	0737	2	0102	0552	2	IIIN
			CULG				0138.5	0740	3				IIIV,N
	0717	0733	WEIS				0718	1551	2				IN,DC
	0736	1550	BLEN	0738.6	0739.8	2	0736 E	0739.8	2				IIIG
			BLEN	0810.2	0813.4	2	0810.2	0813.4	2				IIIG
			BLEN	0836.6	0836.7	3							U
			BLEN	0839.3	0840.3	1	0839.3	0840.3	1				IIIG
			BLEN	0900.8	0901.5	1							DCIM
			BLEN				0901.1	0901.6	1				III
			BLEN	0948.5	1001.6	2	1948.5	1001.6	2				IIIGG
			BLEN	1032.6	1035.3	2	1032.6	1035.3	3				IIIGG
			WEIS				1032.6	1035.5	3				IIIGG
			BLEN	1111.2	1113.8	1	1110.4	1110.6	2				III
			BLEN				1150.8	1151.7	1				III
			WEIS				1208.9	1217.1	3				IIIGG
			BLEN	1209.3	1216.8	3	1208.9	1217.2	3				IIIGG
			WEIS				1217.2	1220.3	3			II	HBHARM

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DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
11			BLEN				1329.7	1332.5	2				IIIG
			BLEN	1332.4	1332.6	1							DCIM
			BLEN	1344.5	1346.8	2	1344.5	1351.8	3				IIIGG
			WEIS				1344.6	1352.1	3				IIIGG/V
			WEIS				1424.7	1431.3	3				IIIGG
			BLEN				1424.7	1430.3	3				IIIG
			HARV	1426	1427	2	1422	1430	3	1425	1429	1	IIIGG
			BLEN	1426.2	1426.4	2							DCIM
			HARV				1439	2334	2				IIIN
			BLEN	1500.8	1500.8	1							IIIB
	1408	2400	HARV	1501	2351	1	1408	2400	2				IN
			BLEN				1506.4	1506.4	2				IIIB
			BLEN	1526.5	1531.4	3	1520.2	1531.4	3				IIIGG
			WEIS				1526.6	1527.0	3				IIIG
			HARV				1527		2				IIIG
			WEIS				1531.4	1531.5	1				IIIB
			WEIS				1542.3	1543.2	3				IIIG
			BLEN				1542.8	1543.1	3				IIIG
			HARV				1543		2				IIIG
			HARV				1603		3				IIIG
			HARV	1612	1613	3	1612	1613	3				IIIG
			HARV				1624	1625	2				IIIG
			HARV	1646	1651	2	1646	1651	2				IIIG
			HARV				1704	1712	2				IIIG
	0855	1558	WEIS				1719	1553	2				IIIN
			HARV				1736	1739	3	1736	1737	2	IIIGG,V
			HARV	1804	1807	2	1804	1807	2				IIIG
			HARV	1833	1837	2	1832	1841	3	1832	1841	3	IIIGG,V
			HARV				1839	1841	2				H,UNCL
			HARV				2003		3	2003		2	IIIG
			HARV	2031		2	2031		2				IIIG
	2046	2400	CULG				2056	2355.5					IIIN,W
			CULG				2100	2249					IN,W
			CULG	2101.5	2237								IS,W
			CULG				2110	2344	1	2340.5	2352	1	IIIN
			HARV				2110	2111	3	2110	2111	2	IIIGG
			CULG	2149	2325	1	2109.5	2352	2				IIIG,N
			HARV	2149	2150	1	2149	2152	3	2149	2152	2	IIIGG
			HARV	2307	2308	2	2307	2308	3	2307	2308	2	IIIG,V
			CULG	2307	2308	2	2307	2308.5	3				IIIG,V
			HARV	2319	2325	1	2319	2325	2				IIIGG
			HARV				2339	2345	2				IIIGG
			CULG	2352	2354.5	2	2352	2355.5	3	2352	2355.5	3	IIIGG
			HARV	2352	2357	2	2347	2355	3	2352	2355	2	IIIGG
12			CULG	0004	0740	2							IN
			CULG				0008	0733.5	2				IIIN
			CULG				0125.5	0731					IIIN,W
			CULG				0329.5	0708.5	3	0329.5	0552.5	3	IIIN
	0000	0745	CULG	0444.5	0708	1	0004	0737.5	1	8008	0554	1	IIIN
			CULG				0549	0552	3	0549	0552	3	IIIGG,V
			CULG				0556	0600	3				II H
	0715	1453	WEIS				0717	1559	1				IIIN
	1512	1600	WEIS				0731.0	0731.8	2				IIIG
			BLEN				0735 E	1540 D	2				I,DC
			WEIS				0737.2	0737.4	3				IIIG
			BLEN				0756.1	0758.8	1				IIIG
			WEIS				0813.2	0816.7	3				IIIG
			WEIS				0857.0	0858.4	2				IIIG
			WEIS				0957.3	1000.5	3				IIIG
			BLEN				1104.3	1104.3	2				III
			BLEN	1119.2	1119.3	2	1119.2	1148.4	3				IIIGG
			WEIS				1127.7	1133.4	3				IIIGG
			WEIS				1201.4	1204.2	3				IIIGG
			BLEN	1203.3	1204.2	2	1203.3	1204.2	3				IIIG
			BLEN				1229.2	1229.3	2				III
			WEIS				1243.3	1245.0	3				IIIG
			BLEN				1244.5	1245.1	2				IIIG
			WEIS				1255.2	1256.8	3				IIIG
			BLEN				1256.6	1256.7	3				IIIB

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DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
12			WEIS				1332.1	1334.9	3				IIIGG
			WEIS				1340.7	1342.3	3				IIIGG
			BLEN	1340.7	1341.5	3	1332.7	1344.9	3				IIIGG
			WEIS				1407.7	1409.6	3				IIIGG
			BLEN				1408.4	1415.8	2				IIIGG
			WEIS				1410.6	1415.3	2				IIIG/V,U
			BLEN				1412.1	1412.5	2				DCIM
	1415	2400	HARV				1415	1423	2				IIIGG
			HARV				1426	1820	2				I
			HARV	1430	2400	1							IN
			BLEN				1435.4	1435.4	1				IIIB
			HARV				1436	2103	2	1753	1919	2	IIIN
			BLEN				1444.8	1444.9	1				DCIM
			HARV				1446		2				IIIG
			HARV				1506	1507	2				IIIG
			HARV				1616	1624	3				IIIGG
			HARV				1820	2046	2				IN
			HARV	1841	1859	2	1839	1901	2	1839	1854	2	IIIGG
			HARV	1946	1947	1	1946	1947	3	1946	1947	2	IIIG
			HARV	2006	2016	1	2004	2018	2	2008	2017	2	IIIGG
			HARV				2024	2037	2	2024	2034	2	IIIGG
			HARV				2025	2029	2				IV,DCIM
			HARV				2046	2400	2				I
			HARV				2050		3	2050		3	IIIG
	2053	2400	CULG	2053	2400	1							IS
			CULG				2055.5	2400					IIIN,W
			HARV	2056		1	2055	2106	3	2055	2100	2	IIIG
			CULG	2056	2356	1	2056	2353	1	2056	2356	1	IIIN
			HARV				2132	2139	2				IIIGG
			CULG	2133	2138	1							DCIM
			HARV	2133	2137	2	2132	2142	1				DCIM
			CULG							2136	2147		SWF,W
			HARV				2149	2206	3	2154	2206	2	IIIGG,V
			HARV	2156	2205	3	2156	2205	3			IV	
			CULG	2156	2204.5	3	2156	2204	3	2156	2204	3	IIIGG,V,Z
			CULG				2205.5	2206	2				IIIG
			HARV				2207	2214	3			II	
			CULG				2207	2213	1			II	
			HARV				2224	2232	2				IIIGG
			CULG				2241	2356	2				IIIN
			HARV	2242	2247	1	2237	2304	3	2242	2251	1	IIIGG
			LEAR				2251.0	2251.3	1				III
			CULG				2255	2400	1				IS,DC
			LEAR				2302.9	2303.1	1				III
			HARV				2316	2333	3				IIIGG
			LEAR				2316.6	2325.6	2				III
			LEAR				2330.5	1047.0	1				CONT
			HARV				2344	2356	3				IIIGG
			LEAR				2349.5	2349.8	2				III
13	0000	0746	CULG	0000	0746	1	0000	0035	1				IS
			CULG				0000	0727.5					IIIN,W
			CULG	0004	0702	1	0004	0704.5	1	0008	0502	1	IIIN
			CULG				0043	0737	2	0043.5	0347.5	2	IIIG,N
			CULG	0051.5	0052	1	0051.5	0052.5	3	0052	0053	3	IIIG
			PALE				0149.9	0203.1	1				GG
			LEAR				0202.8	0203.4	2				III
			LEAR				0253.6	0258.6	2				III
			LEAR				0323.2	0337.2	2				GG
			CULG				0330.5	0332	3	0330	0330.5	1	IIIG,Z
			LEAR				0347.2	0347.6	2				III
			CULG				0347.5		3	0347.5		3	IIIG
			LEAR				0416.6	0424.1	2				III
			LEAR				0500.9	0501.8	2				III
			WEIS				0715.8	0717.6	2				IIIG
			LEAR				0716.8	0717.2	2				III
	0710	1603	WEIS				0719	1603	2				IS,DC
	0735	1350	BLEN				0735 E	1350 D	3				I,DC
			LEAR				0736.4	0744.5	2				III
			WEIS				0736.4	0736.7	3				IIIB

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DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
13			WEIS				0743.9	0744.6	3				IIIG
			CULG				0744	0744.5	3				IIIG
			WEIS				0748	1549	2				IIIS
			LEAR				0802.3	0802.5	2				III
			WEIS				0802.3	0802.6	2				IIIG
			WEIS				0805.7	0806.6	3				IIIG
			BLEN				0805.7	0806.3	3				IIIG
			LEAR				0806.8	0807.5	3				III
			BLEN	0832.3	0835.3	3	0832.3	0832.5	3				IIIGG
			BLEN				0848.3	0848.9	2				IIIG
			BLEN				0954.5	1015.3	3				IIIG
			LEAR				0954.5	0954.7	2				III
			WEIS				0954.6	0954.8	2				IIIG
			WEIS				1007.6	1009.2	3				IIIG
			LEAR				1008.7	1009.3	2				III
			LEAR				1030.2	1036.4	2				III
			WEIS				1034.7	1039.2	3				IIIG
			BLEN				1036.2	1043.1	3				IIIGG
			WEIS				1041.6	1042.9	3				IIIG
			BLEN				1103.2	1105.8	3				IIIGG
			WEIS				1103.3	1106.9	3				IIIGG
			WEIS				1112.9	1117.2	2				IIIGG
			WEIS				1119.2	1128.7	3				IIIGG
			WEIS				1133.3	1136.3	3				IIIGG
			BLEN	1134.3	1135.5	2	1133.8	1138.0	3				IIIGG
			BLEN	1148.6	1151.1	2	1149.3	1204.8	3				IIIG
			WEIS				1149.2	1150.8	3				IIIGG
			BLEN	1254.3	1255.3	3							IIIG
			WEIS				1401.8	1402.3	3				IIIG
			WEIS				1410.7	1412.8	3				IIIG
	1415	2350	HARV				1415	2350	2				I
			HARV				1415	1424	2				IIIG
			HARV	1416	2327	1							IN
			HARV				1455	2259	2	1827	2024	2	IIIN
			HARV	1512	1515	2	1512	1513	2				IIIGG
			HARV				1542	1549	2				IIIGG
			HARV	1555		1	1555	1601	3	1555	1601	1	IIIGG
			WEIS				1555.5	1556.5	3				IIIG
			WEIS				1559.2	1601.4	3				IIIGG
			HARV				1701	1704	2	1702		1	IIIG
			PALE				1722.8	1725.2	2				G
			HARV				1723	1724	3	1723	1724	2	IIIGG,V
			SGMR				1724.9	1725.3	1				III
			HARV				1742		3	1742		2	IIIG
			PALE				1748.2	1748.9	3				III
			HARV	1810	1811	1	1810	1811	2				IIIG,U
			HARV				1841	1843	3	1841	1845	2	IIIGG,V
			SGMR				1842.8	1843.5	2				V
			PALE				1904.8	1909.6	2				G
			SGMR				1904.8	1920.7	1				GG
			HARV				1905	1911	3	1905	1911	2	IIIGG
			HARV				1915	1921	3	1915	1921	2	IIIGG,V
			PALE				1918.9	1922.2	2				V
			HARV	1937	2011	2	1938	2014	3	1938	2010	2	IIIGG
			PALE				1938.0	2007.0	2				GG
			SGMR				1958.1	1958.3	1				III
			PALE				2043.0	2137.3	2				GG
			HARV				2044	2056	3	2044	2054	2	IIIGG
	2046	2400	CULG	2046	2400	1							IS
			CULG				2053.5	2400					IIIN,W
			CULG				2054	2254	2	2101	2254	2	IIIN
			HARV	2101	2121	1	2101	2140	3	2102	2137	2	IIIGG,U,V
			CULG				2113	2114.5	3	2114	2114.5	1	IIIG,V,U
			CULG	2114.5	2218	1	2101.5	2400	1	2107.5	2400	1	IIIN
			CULG				2135	2202					IN,W
			HARV	2147		1	2147	2205	3	2147	2202	2	IIIGG
			PALE				2147.0	2234.2	2				GG
			CULG				2157.5	2200	3	2158	2200	2	IIIG
			HARV	2212	2226	2	2210	2226	3	2213	2226	2	IIIGG,U
			CULG	2213	2214	2	2213	2214	2				IIIG,U

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				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
13			HARV				2231	2243	3	2234		2	IIIGG
			CULG				2234	2234.5	3	2234	2234.5	3	IIIG
			LEAR				2234.1	2234.3	1				III
			LEAR				2250.6	2252.7	2				III
			HARV	2251	2252	1	2247	2254	3	2252		2	IIIGG
			PALE				2251.6	2338.7	2				GG
			CULG				2252	2252.5	3	2252	2252.5	3	IIIG
			HARV	2309		1	2309	2325	2				IIIGG
			LEAR				2330.8	2333.3	2				III
			CULG				2332	2333.5	3	2332	2333.5	3	IIIG
			HARV	2332	2333	3	2332	2333	3				IIIGG
			HARV				2337	2338	3				IIIGG
			CULG	2337	2338	2	2337	2339	3	2337.5	2339.5	3	IIIG,V
			LEAR				2337.3	2345.0	2				III
			LEAR				2346.8	2355.3	3				III
			PALE				2346.9	2354.4	3			IV	
			CULG				2347	2350.5	3	2347	2351	3	IIIGG
			HARV	2347	2348	1	2346	2350	3	2347	2350	2	IIIGG
			LEAR				2350.6	2352.7	2				III
			CULG	2351.5	2354	3	2351.5	2354	3	2351.5	2354.5	3	IIIGG
			LEAR				2356.9	0014.5	2				G
			CULG				2357	2357.5	3	2357.5	2358	3	IIIG
14			CULG				0000	0742	1	0000	0632.5	1	IIIN
	0000	0746	CULG	0000	0252.5								IS,W
			CULG				0001	0746					IIIN,W
			LEAR				0025.4	0040.2	1				G
			LEAR				0041.8	0045.4	2				III
			CULG				0043	0045	1				POSSII
			CULG				0043.5	0737	2	0146.5	0648.5	2	IIIN
			LEAR				0045.5	1047.0	1				CONT
			PALE				0108.7	0206.9	2				GG
			LEAR				0110.2	0110.5	2				III
			LEAR				0119.0	0123.3	2				III
			CULG	0119.5	0122	2	0119.5	0122	2	0119.5	0122	2	IIIG,V,U
			LEAR				0133.9	0135.5	3				III
			CULG	0134	0134.5	2	0134	0134.5	3	0134	0134.5	3	IIIG
			CULG							0143	0152		SWF,W
			LEAR				0146.0	0148.8	2				III
			LEAR				0206.4	0207.3	2				III
			LEAR				0256.4	0256.7	2				III
			CULG				0259.5	2101.5	3	2100	2101	2	IIIG,V
			LEAR				0406.9	0411.3	2				III
			CULG				0407	0409.5	3	0407	0409.5	2	IIIGG
			CULG				0438.5	0441	3	0438.5	0441	3	IIIGG,V
			LEAR				0438.7	0442.1	3				III
			LEAR				0456.0	0456.5	2				III
			LEAR				0508.2	0508.5	2				III
			LEAR				0536.1	0537.3	2				III
			LEAR				0537.9	0541.3	3				III
			CULG				0538	0540.5	3	0538	0540.5	3	IIIGG,V
			LEAR				0552.2	0600.3	2				III
			LEAR				0623.5	0628.2	2				III
			LEAR				0640.8	0652.3	2				G
			CULG				0648	0648.5	3	0648	0648.5	3	IIIB
			WEIS				0715	1557	3				IS,DC
	0710	1604	WEIS				0718	1602	2				IIIS
			WEIS				0737.0	0742.2	3				IIIG
			LEAR				0737.0	0739.3	2				III
			CULG				0739		3				IIIB
			WEIS				0808.7	0816.7	3				IIIGG/V
			LEAR				0808.8	0811.3	2				III
			LEAR				0812.1	0823.3	3				G
			WEIS				0817.2	0822.3	3				IIIG/V
			WEIS				0835.3	0838.6	3				IIIG
			LEAR				0837.3	0842.0	2				III
			WEIS				0841.4	0842.3	3				IIIG
			WEIS				0926.7	0828.2	2				IIIG
			WEIS				0933.6	0935.7	3				IIIGG
			LEAR				0933.7	0935.0	3				III

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				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
14			WEIS				0937.3	0939.0	3				IIIGG
			LEAR				0940.1	0944.4	3				III
			WEIS				0940.1	0944.3	3				IIIG/V
			WEIS				0940.1	0944.3	3				
			WEIS				0944.7	0957.3	3				II HARM
			LEAR				0944.8	0956.5	2				II
			WEIS				0945.4	0949.3	3				IIIGGRS
			WEIS				0954.4	0958.9	3				IIIGG
			WEIS				1004.4	1005.8	3				IIIG
			WEIS				1324.9	1325.2	2				IIIG
			SGMR				1348.0	1349.0	1				V
			WEIS				1348.3	1349.0	3				IIIG
	1415	2355	HARV				1415	2120	2				I
			WEIS				1416.4	1421.4	2				IIIGG
			HARV				1417	1425	2				IIIGG
			HARV	1420	2149	1							IN
			HARV				1440	2304	2	1655	2222	2	IIIN
			SGMR				1448.7	1449.0	1				III
			WEIS				1449.7	1450.2	3				IIIG
			HARV				1450		2				IIIG
			HARV	1509		1	1509		2				IIIG
			HARV	1658		2	1658		3				IIIGG
			HARV				1709		2				IIIG
			HARV	1736		1	1735	1740	2	1736	1738	1	IIIGG
			SGMR				1834.2	1838.8	2				V
			PALE				1834.3	1838.7	2				G
			HARV	1838		2	1834	1838	3	1834	1838	2	IIIGG,V
			HARV	1938	1939	1	1937	1943	2	1938		2	IIIGG
			PALE				2005.0	2014.4	2				G
			SGMR				2005.0	2005.4	1				V
			HARV	2008	2022	2	2002	2025	3	2002	2025	2	IIIGG,V
			PALE				2014.7	2017.9	2				V
			SGMR				2014.8	2016.0	2				V
			HARV	2027	2039	2							IV
			PALE				2040.9	2046.6	2				G
			HARV	2042	2045	2	2037	2046	3	2037	2046	2	IIIGG
	2046	2400	CULG				2046	2316					IIIN,W
			CULG	2046	2250	1	2046	2117.5	1				IS
			HARV				2059	2111	3	2059	2111	2	IIIGG
			PALE				2059.9	2111.5	2				GG
			CULG	2102	2308	1	2102	2308	2	2111.5	2308	1	IIIN
			CULG	2106.5		2	2106.5	2107	3	2106.5		1	IIIB
			CULG				2111.5	2307.5	1				IIIN
			CULG				2117.5	2223					IN,W
			PALE				2222.3	2313.8	3				GG
			HARV				2236	2237	3	2236	2237	2	IIIG,V
			CULG				2236.5	2237.5	3	2236.5	2237.5	2	IIIG,V
			HARV	2302		1	2256	2302	3	2258	2259	1	IIIGG,V
			LEAR				2307.8	2308.3	2				III
			HARV	2308	2314	2	2307	2314	3	2308	2313	2	IIIGG,V
			LEAR				2309.5	2313.8	3				III
			CULG	2311.5	2312	3	2309.5	2314	3	2310	2314.5	3	IIIGG,V
			LEAR				2336.6	0337.2	1				III
			PALE				2357.3	0044.1	2				GG
			LEAR				2358.1	2359.0	2				III
15	0000	0746	CULG	0000	0746								IN,W
			LEAR				0001.5	1046.0	1				CONT
			CULG				0002	0656					IIIN,W
			CULG	0011.5	0017	1	0018.5	0205	1				IS
			PALE				0050.1	0050.5	1				III
			PALE				0122.7	0123.0	1				III
			CULG	0134	0134.5	3							DCIM
			LEAR				0143.9	0145.1	2				III
			PALE				0144.0	0218.2	2				GG
			LEAR				0200.5	0201.5	2				III
			CULG	0205	0637	1	0010.5	0642.5	1	0014	0642.5	1	IIIN
			LEAR				0210.8	0212.3	2				III
			CULG				0211	0211.5	3	0211	0212	2	IIIG
			LEAR				0216.3	0218.2	2				III

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				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
15			CULG				0216.5	0218	3	0216.5	0218	2	IIIGG
			LEAR				0327.4	0332.2	3				III
			PALE				0327.4	0331.8	2				G
			CULG	0327.5	0330	2	0327.5	0330	3	0327.5	0330.5	3	IIIGG,V
			CULG							0330	0337		SWF,W
			CULG				0331.5		3	0331.5		2	IIIB
			LEAR				0332.9	0339.1	2				III
			CULG				0337.5	0338	2	0337.5	0338	2	IIIG
			LEAR				0441.9	0442.5	2				III
			CULG				0442	0442.5	2	0442	0442.5	1	IIIB,V
			CULG	0612	0612.5	2	0612	0612.5	2	0612	0612.5	1	IIIG
			LEAR				0612.3	0612.7	2				III
			LEAR				0643.7	0645.4	3				III
			CULG	0644	0645	2	0644	0645.5	3	0644	0645	2	IIIG
	0709	0759	WEIS				0712	1604	2				IS,DC
	0807	0911	WEIS				0712	1419	3				IIIN
			LEAR				0819.7	0820.2	2				III
			LEAR				0822.7	0823.7	2				III
			LEAR				0830.7	0835.4	2				III
	0919	1604	WEIS				0831.4	0835.2	3				IIIGG
			WEIS				0928.3	0932.5	3				IIIGG
			LEAR				0931.5	0932.4	2				III
			WEIS				1141.7	1146.6	3				IIIGG
			WEIS				1147.9	1149.2	2				IIIGG
			WEIS				1155.9	1156.7	2				IIIG
			WEIS				1213.2	1214.9	3				IIIGG
			WEIS				1317.7	1323.8	3				IIIGG,DCIM
			SGMR				1401.8	1402.4	1				III
	1415	2355	HARV				1415	2355	2				I
			HARV				1416	2351	2	1709	2050	2	IIIN
			HARV	1446	2355	1							IN
			HARV				1629	1631	2				IIIG
			HARV	1720	1728	3	1720	1733	3	1720	1732	2	IIIGG
			SGMR				1728.2	1729.8	1				V
			HARV				1746	1759	2	1750	1759	2	IIIGG
			HARV	1803	1805	1	1803	1817	3	1803	1817	2	IIIGG
			SGMR				1803.5	1804.0	2				V
			HARV				1910	1915	3	1910	1915	2	IIIG
			HARV	1924	1927	1	1924	1931	3	1924	1931	2	IIIGG
			SGMR				1930.3	1940.1	2				G
			PALE				1930.3	1940.5	2				GG
			HARV				1938	1940	3	1939	1940	2	IIIGG,V
			SGMR				2007.7	2013.0	1				GG
			HARV	2013		1	2008	2013	2	2008	2013	2	IIIG
			HARV				2018	2028	3	2018	2028	2	UNCL
			HARV				2028	2030	2				IIIGG
	2046	2400	CULG	2046	2400	1							IS
			CULG				2050.5	2355					IIIN,W
			CULG	2205.5		1							IIIB,U
			HARV	2232	2234	2	2232	2236	2				IIIGG,V
			CULG				2233	2234	2	2233	2234	2	IIIG
			CULG				2235.5		1	2235.5		1	IIIB
			LEAR				2332.4	0540.2	1				CONT
16	0000	0746	CULG	0000	0545								IN,W
			CULG				0023	0745					IIIN,W
			CULG				0039	0746	1	0039	0517.5	1	IIIN
			LEAR				0101.9	0109.9	2				III
			CULG	0102	0108.5	2	0102	0108.5	2	0102	0108.5	2	IIIGG
			CULG	0108	0140	1							IS
			LEAR				0135.3	0136.1	2				III
			CULG				0135.5	0136	2	0135.5	0136	2	IIIG
			LEAR				0140.9	0149.1	2				III
			CULG				0142	0149	1	0142	0149	1	IIIS
			LEAR				0540.2	1045.0	2				CONT
			CULG	0545	0746	1							IS
	0706	0800	WEIS				0708	0800	2				I
			WEIS				0745.3	0745.9	2				IIIG
			WEIS				0752.2	0753.9	3				IIIGG
	0840	0900	WEIS				0848.7	0856.9	2				IIIGG

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				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
16	0920	1016	WEIS				0953.2	0953.3	2				IIIB
			WEIS				0954.7	1000.7	2				IIIGG
			WEIS				1002.2	1007.3	3				IIIGG
	1415	2355	HARV				1415	1838	2				I
			HARV	1513	1539	2	1512	1539	2				IV
			HARV	1514	2355	1							IN
			WEIS				1524	1545	1				IIIN
			HARV				1558	1600	2				IIIG
			HARV	1630	1639	2	1625	1639	2	1631	1638	1	IIIGG
			HARV	1640	1648	1	1640	1649	1				IIIGG
			HARV				1726		2				IIIG
			PALE				1731.0	0401.0	1				CONT
			HARV				1747		2	1747		1	IIIG
			HARV				1838	2355	1				IN
			HARV	1858	1901	2	1858	1901	2				IIIG
	2046	2400	CULG	2046	2400	1							IS
			HARV				2047	2109	2				DC
			HARV				2223	2226	2				IIIGG
			HARV				2240	2248	2				IIIGG,V
			HARV	2328		1	2328		2				IIIG
17	0000	0740	CULG	0000	0740	1							IS
			CULG				0056.5	0733.5	1	0254	0504	1	IIIN
			CULG	0056.5	0059	1							DCIM
			CULG				0056.5	0729.5					IIIN,W
			CULG	0119.5	0120.5	2	0119.5	0120.5	2	0119.5	0121	2	IIIG
			CULG				0326	0326.5	2				IIIB,U
			CULG	0426.5	0427.5	2	0426.5	0427.5	1	0427	0427.5	1	IIIG
			CULG	0521	0521.5	3				0521	0522	2	IIIG
			CULG				0632.5	0633	2	0632.5	0633	2	IIIB
	1025	1437	WEIS				0708	1558	2				IS,DC
	0705	1019	WEIS				0718	1608	2				IIIN
	1453	1608	WEIS				0746.5	0749.3	3				IIIGDCIM/V
			WEIS				0750.0	0754.6	2				IIIGGDCIMR
			WEIS				0959.2	1000.9	2				IIIGDCIM
	1400	2355	HARV				1400	2355	2				I
			HARV				1412	1413	2				IIIG
			HARV	1418	1419	1	1417	1419	2				IIIGG,V
			HARV				1434	1848	2				IIIN
			HARV	1442	1443	1	1440	1443	2				IIIGG
			HARV	1526	2237	1							
			HARV				1603	1607	3	1603	1607	1	IIIGG
			HARV				1633	1643	2	1635	1642	1	IIIGG
			HARV				1713	1716	2	1713	1716	2	IIIG
			HARV				1732	1733	3	1732	1733	2	IIIGG
			HARV				1745	1748	2	1745	1748	2	IIIG
			HARV				1809	1810	2	1809	1810	2	IIIG
			HARV	1824	1826	1	1824	1826	2	1824	1826	2	IIIGG
			HARV	1832	1842	1	1832	1842	3	1833	1838	2	IIIGG,V
			HARV	1902	1903	1	1902	1903	2				IIIG
			HARV	1914		1	1912	1916	2	1912	1916	2	IIIGG
			HARV	1939	1916	2	1934	1947	2	1940	1947	2	IIIGG,V,U
			HARV	1955	2010	2	1955	2012	3	1955	2011	2	IIIGG,V
			HARV	2017		2	2017	2040	3	2017	2040	2	IIIG
			HARV				2047	2107	2	2047	2107	2	IIIGG
	2049	2400	CULG				2049	2400	1				IIIS
			CULG	2049	2400	1	2105	2400	1				IS
			CULG				2106	2306	2	2106	2306	1	IIIN
			CULG	2117.5	2118	2	2117.5	2118.5	3	2117.5	2118	1	IIIG,Z
			HARV	2118		1	2116	2121	3	2116	2121	2	IIIGG,V
			CULG	2120.5	2121	1	2120	2121	3	2120.5	2121	1	IIIG
			HARV	2134	2149	2	2134	2150	2				IV
			CULG	2143	2400	2							DCIM,N
			CULG				2143	2313	3				IIIN
			CULG				2306	2347	2	2306	2347	2	IIIS
			HARV	2326	2355	3	2137	2355	3	2137	2323	2	IIIS
18			CULG				0000	0705					IIIN,W
			CULG				0000	0256	1				IS,C
			CULG							0000	0500	1	IIIN

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DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
18	0000	0746	CULG	0000	0746								IN,W
			CULG				0011	0724.5	2	0035	0454.5	2	IIIN
			CULG	0108.5	0109	1	0108	0109	3	0108	0109	2	IIIG
			CULG	0130.5	0131	1	0130.5	0131	3	0130.5	0131.5	3	IIIG
			CULG	0211.5	0212	1	0211.5	0213	3	0211.5	0213	3	IIIG,V
			CULG	0228.5	0229	3	0228.5	0229	2				IIIG
			CULG	0228.5	0729	1							IIIN
			CULG				0256	0746					IN,W
			CULG	0446	0448	2	0446	0447.5	3	0446	0447.5	3	IIIGG
			CULG				0500.5	0504	3	0500.5	0504	3	IIIGG
	0708	1130	WEIS				0704	1611	2				IS,DC
			CULG				0705	0746	1				IIIS
	1156	1611	WEIS				0722	1509	2				IIIN
			WEIS				0722.6	0729.5	3				IIIGGDCIM
			WEIS				0811.5	0823.7	3				IIIGGDCIM
			WEIS				0902.2	0909.2	3				IIIGGDCIM/
			WEIS				1301.5	1330.0	3				IIIGG/V
	1400	2400	HARV				1412	2109	2				I
			HARV	1518	1523	1	1518	1522	2				IIIGG
			HARV				1634	1815	2	1645	1816	2	IIIN
			HARV	1717	2400	1							IN
			HARV				1816	2203	2	1816	2203	2	IIIS
			HARV	1829	1832	2	1829	1832	3	1829	1832	2	IIIGG
			PALE				1942.5	0400.0	2				CONT
			HARV	2040	2044	1	2037	2047	2	2038	2047	2	IIIGG
	2046	2400	CULG	2046	2400								IS,C
			CULG				2046	2336.5	1				IIIS
			CULG				2046	2400	1				IS,C,DC
			HARV				2110	2400	3				IC
			CULG				2124	2334	2	2128	2336.5	1	IIIN
			LEAR				2232.0	2307.0	1				CONT
			LEAR				2307.0	0006.0	2				CONT
			HARV	2333 2	2343 2	2	2337	2351	2	2337	2341	1	IIIGG
			CULG				2336.5	2400	3	2336.5	2400	3	IIIS
			LEAR				2336.8	2338.8	3				III
19			CULG				0000	0746	2				IS,C
			CULG				0000	0021	3	0000	0031	2	IIIS
	0000	0746	CULG	0000	0746								IN,C
			CULG	0005.5	0055	2							IIIN
			LEAR				0006.0	0138.0	3				CONT
			CULG				0021	0746	1	0031	0120	1	IIIS
			CULG				0024	0746	2				IIIN
			CULG							0120	0643	1	IIIN
			LEAR				0138.0	1043.0	2				CONT
			CULG				0545	0725	1				DC,N
	0709	1209	WEIS				0709	1612	3				CONT
			CULG				0735	0746	1				SCINT
	1537	1612	WEIS				1039	1155	1				IIIN
			SGMR				1136.9	1138.1	1				III
	1041	1550	BLEN	1137.2	1142.7	2	1137.2	1142.7	3				III,RS
			BLEN				1202	1550 D	3				I,DC
			SGMR				1203.1	1203.5	1				III
			SGMR				1314.9	1317.6	1				V
			BLEN	1316.2	1316.4	1	1316.2	1316.4	1				III
			SGMR				1326.3	1359.3	2				GG
	1252	1417	WEIS				1327	1400	1				IN
			SGMR				1336.4	1810.0	2				CONT
	1400	2355	HARV				1400	1900	3				IC
			BLEN	1500.8	1501.0	2	1500.8	1501.0	2				III
			HARV	1501		2	1459	1501	2				IIIG
			BLEN	1512.6	1512.7	1							U
			HARV	1523	1538	2							IC,IIIN
			BLEN	1523.2	1523.6	2	1523.2	1523.6	2				III
			HARV	1556	1558	2	1556	1558	2				IIIG
			HARV	1619	1622	2	1619	1622	2	1619	1622	2	IIIG
			SGMR				1619.7	1622.2	2				V
			SGMR				1744.9	1751.1	1				V
			HARV				1745	1749	2	1745	1749	2	IIIGG
			HARV				1758	2355	2	1758	2124	2	IIIN

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				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
19			SGMR				1834.6	1835.7	1				V
			HARV	1835		1	1834	1836	3	1834	1836	2	IIIG,V
			SGMR				1858.4	1858.5	1				III
			HARV				1900	2353	2				I
			SGMR				1903.3	1908.2	3				V
			PALE				1903.5	1910.3	3				G
			HARV	1904	1908	1	1903	1909	3	1903	1909	2	IIIG,V
			HARV				2012	2013		2012	2013	2	IIIG,V
			PALE				2012.4	2014.6	2				V
			CULG				2046	2400	1				IIIS
	2046	2400	CULG	2046	2400	1	2046	2400	2				IS,C
			CULG				2103	2103.5	3				IIIB,V
			CULG				2106.5		3				IIIG
			CULG	2144.5	2350.5	2	2145	2349	2	2151	2351	1	IIIN
			HARV	2145	2151	2	2145	2151	2	2145	2151	2	IIIGG
			LEAR				2232.0	2317.0	1				CONT
			LEAR				2253.0	2300.0	2				UNCLF
			HARV	2302		1	2258	2310	2	2258	2303	1	IIIGG
			LEAR				2317.0	1043.0	2				CONT
			CULG				2330.5	2332	2	2330.5	2333	2	IIIG,V
			HARV				2331	2332	2	2331	2332	1	IIIGG
			CULG				2339.5	2341.5	3	2340	2342.5	3	IIIG,V,Z
			LEAR				2339.6	2341.2	2				III
			HARV				2340		3				IIIG
20			CULG				0000	0530	2				IS,C,DC
	0000	0746	CULG	0000	0630	1							IN,C
			CULG				0000	0400					IIIS,W
			CULG				0003	0738	1	0009	0639.5	1	IIIN
			CULG				0019	0405	2				IIIN
			CULG				0400	0746					IIIN,W
			CULG				0530	0635	2				IS,DC
			CULG	0630	0746	2							IS,DC
			CULG				0634.5	0654	2				IIIN
			CULG				0634.5	0635	2	0634.5	0635	1	IIIG
			CULG				0635	0746	1				IN
			CULG	0655.5	0656	2	0655.5		2				IIIB
	0659	1613	WEIS				0702	1609	2				IS
	0720	1555	BLEN				0720 E	1555 D	2				I,DC
			WEIS				0731	1553	2				III
			WEIS				0853	1100	2				CONT
			LEAR				0923.4	0929.1	3				III
			BLEN	0923.7	0925.8	3	0923.7	0926.3	3				IIIGG
			WEIS				1100	1630	2				CONT
			BLEN	1158.6	1225.7	2	1156.6	1225.9	2				IIIGG
			BLEN	1238.0	1238.2	1	1238.0	1238.2	2				III
	1400	2400	HARV				1400	1900	3				IC
			HARV	1413	2400	1							INW
			HARV				1536	2228	2	1536	1730	2	IIIN
			SGMR				1546.0	1900.0	1				CONT
			HARV				1551	1558	2	1554	1558	2	IIIGG
			WEIS				1554.1	1554.6	3				IIIG
			WEIS				1557.6	1558.2	3				IIIG
			PALE				1731.0	0411.0	1				CONT
			HARV	1758	1901	1						IV	
			HARV				1803	1813	3	1803	1813	2	II
			HARV				1849		2	1849		2	IIIG
			PALE				1849.1	1849.3	1				III
			SGMR				1849.1	1849.3	1				III
			HARV				1900	2400	2				IC
			HARV				1907	1908	2	1907	1908	2	IIIG
			SGMR				1907.5	1907.6	1				III
			CULG	2046	2400	1	2046	2207	1				IS
			CULG				2047.5	2315					IIIN,W
			CULG				2140.5	2326	1	2157	2304	1	IIIN
			CULG				2158.5	2202	2	2158.5	2202	1	IIIGG
			PALE				2158.9	2202.5	1				G
			HARV	2200		1	2159	2204	2	2159	2201	2	IIIGGG
			CULG				2207	2400					IN,W
			HARV				2254	2326	2				IIIGG

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				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
20			LEAR				2303.5	2303.9	1				III
			PALE				2303.5	2303.8	1				III
			LEAR				2308.3	1042.0	1				CONT
			LEAR				2325.9	2326.3	1				III
			LEAR				2339.6	2341.2	2				III
21	0000	0746	CULG	0000	0746	1							IS,C
			CULG				0000	0145	1				IN
			CULG	0010	0033		0000	0740					IIIN,W
			CULG							0042.5		1	IIIB
			LEAR				0126.5	0132.1	2				III
			PALE				0127.3	0131.5	1				G
			CULG				0127.5	0131.5	2	0127.5	0131.5	3	IIIGG
			LEAR				0138.3	0142.2	3				III
			CULG				0138.5	0142	3	0138.5	0141.5	3	IIIGG
			PALE				0138.9	0141.7	2				V
			PALE				0141.7	0405.0	1				CONT
			CULG				0145	0400	1				IS,C
			CULG				0248	0250	2	0248	0249.5	1	IIIG
			LEAR				0248.2	0249.3	2				III
			CULG				0400	0746					IN,W
	0659	1404	WEIS				0659	1404	2				IS,DC
			WEIS				0705	1357	2				IIIS
	0720	1545	BLEN				0720 E	1545 D	2				I,DC
			CULG				0723		1				IIIB
			WEIS				0848.2	0954.8	3				IIIGG
			LEAR				0853.1	0855.0	2				III
			BLEN				1001.8	1008.6	2				IIIG
			WEIS				1001.8	1003.9	3				IIIGG
			BLEN	1034.3	1034.4	2	1334.3	1034.4	2				III
			BLEN				1224.3	1224.6	2				IIIG
			SGMR				1224.3	1224.6	1				V
			WEIS				1318.4	1333.6	3				IIIGG
			SGMR				1329.0	1332.3	1				V
	1400	2355	HARV				1400	1700	2				I
			HARV	1418	2256	1							INW
			BLEN				1426.6	1426.8	1				III
			SGMR				1453.9	1455.1	1				V
			HARV				1501	1508	2				IIIGG
			HARV				1535	2333	2	1819	2057	2	IIIN
			SGMR				1551.9	1552.2	1				V
			HARV				1552		2				IIIG
			HARV				1605	1606	2				IIIG
			HARV				1700	2335	1				IN
			HARV	1805	1806	2	1805	1806	2	1805		2	IIIGG
			HARV	1836		1	1836		2				IIIG
			HARV	1851	1857	1	1845	1856	2	1845	1857	2	IIIGG
			PALE				1851.1	1856.5	1				G
			HARV				1905	1907	2	1905	1907	2	IIIGG,V
			PALE				1905.3	1906.3	2				V
			SGMR				1905.5	1905.8	1				V
			CULG				2046	2400					IIIN,W
	2046	2400	CULG	2046	2400	1							IN
			LEAR				2330.5	1041.0	1				CONT
22			CULG										
	0000	0745	CULG	0000	0745	1							IS
			CULG				0132	0546					IIIN,W
			PALE				0207.3	0208.1	1				III
			LEAR				0207.3	0208.1	1				III
			CULG				0207.5	0208	1	0207.5	0208.5	1	IIIB,U
			CULG	0207.5	0208	2							IIIG
			CULG				0215		1				IIIB
			CULG				0409	0409.5	1	0409.5	0410	1	IIIG
			LEAR				0409.2	0409.5	1				III
			LEAR				0458.3	0500.0	2				III
			CULG				0458.5		1	0458.5		1	IIIB
	1408	1617	WEIS				0658	1616	2				IN,DC
	0725	1545	BLEN				0725 E	1410.0	2				I,N
	0658	1344	WEIS				0727	1617	2				IIIN

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				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
22			WEIS				0814.5	0816.3	2				IIIGG
			BLEN	0814.5	0816.3	2	0814.5	0816.3	2				III
			BLEN	1202.7	1210.5	2							IIIGG
			WEIS				1312.1	1317.4	3				DCIM
			BLEN				1312.1	1317.5	2				IIIGG
	1400	2400	HARV				1400	1649	1				IN
			SGMR				1422.6	1423.5	1				V
			WEIS				1422.7	1425.2	3				IIIGG
			HARV				1423	1424	2				IIIG
			HARV	1552	2400	1							INW
			HARV				1649	2248	2				I
			HARV				1706	1707	2				IIIG
			HARV				1821	1822	2				IIIG
	2046	2400	CULG	2046	2400	1							IS
			CULG				2046	2255					IN,W
			CULG		5 I		2205	2255					IS,W
			LEAR				2234.0	1041.0	1				CONT
			HARV				2248	2400	2				IC
			CULG				2255	2400	1				IS
23	0000	0745	CULG	0000	0745	1	0000	0130	1				IS
			CULG							0021.5	0022	1	IIIB
			CULG				0037	0037.5		0035	0038		IIIN,W
			CULG				0130	0350					IN,W
			CULG	0314	0315	2							IIIG
			CULG	0320	0320.5	2							IIIG
			CULG	0516	0517	3							IIIG
			CULG				0534	0608	1				IIIS
			LEAR				0534.0	0536.2	2				III
			WEIS				0739	1516	1				IIIN
	0656	1618	WEIS				0917	1607	2				IN,DC
	0725	1545	BLEN	0918.0	1545 D	2	0918.0	1545 D	2				I
			BLEN	0921.7	0935.8	2	0921.7	0935.8	2				IIIGG
			WEIS				0934.7	0937.5	2				DCIM,RS
			BLEN	0934.8	0937.6	2	0934.8	0938.5	2			II	
			WEIS				0935.5	0944.2	2			II	HARM
			LEAR				0935.6	0944.3	1			II	
			WEIS				0937.5	0936.0	2				IIIG
	1342	2400	HARV				1342	1910	1				IN
			WEIS				1541.8	1542.9	3				IIIG
			HARV				1542		2	1542		1	IIIG,V
			HARV				1626	1627	2				IIIG
			HARV	1632	2356	1							INW
			HARV				1747	1748	2	1748		2	IIIG,V
			PALE				1747.6	1748.0	1				III
			HARV				1805		2				IIIG
			HARV				1904	1905	2				IIIG
			HARV				1910	2000	2				I
			HARV				2000	2400	1				IN
			HARV				2032		2				IIIB
	2046	2400	CULG	2046	2400	1							IN
24	0000	0745	CULG	0000	0745	1							IN
			LEAR				0059.3	0100.4	1				III
			CULG				0113	0115.5	3	0113	0115.5	2	IIIG,V
			LEAR				0113.0	0115.1	2				III
			LEAR				0121.3	0920.0	1				CONT
			CULG				0129	0740					IIIN,W
			LEAR				0133.4	0141.3	1				III
			LEAR				0158.0	0158.3	1				III
			CULG	0333.5	0336.5	1							DCIM
			LEAR				0509.3	0510.7	3				III
			CULG	0509.5	0510	3	0509.5	0511	3	0509.5	0510.5	2	IIIG,V
	0654	0808	WEIS				0654	1618	2				IN
	0720	1550	BLEN	0720 E	1550	1	0720 E	1550	1				I,N,DC
			CULG				0722	0745					IN,W
	0813	1621	WEIS				0804.9	0807.8	2				IIIG
			BLEN	0806.3	0810.7	3	0807.2	0807.3	2				IIIGG
			WEIS				0819.4	0819.6	1				IIIB
			WEIS				0856.8	0857.1	2				IIIG

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				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
24			LEAR				0856.8	0859.3	2				V
			BLEN	0927.2	0927.4	1							UNCL
			WEIS				0937.8	0937.9	1				IIIB
			WEIS				1123.2	1125.2	2				IIIG
			WEIS				1139.4	1147.8	3				IIIGG
			WEIS				1218.7	1219.0	1				IIIG
	1343	2400	HARV	1352	2400	1							INW
			HARV				1354	1750	1				I
			HARV	1510		2							IIIG
			HARV				1551	1554	2	1553		1	IIIG,V
			WEIS				1551.3	1554.7	3				IIIGG
			HARV				1630	2155	2				IIIN
			HARV				1634	1635	2				IIIG,U
			HARV				1648	1650	2				IIIGG
			HARV				1750	1932	3				I
			HARV	1914		1	1913	1914	2	1913	1914	1	IIIG
			HARV				1917	1920	2	1917	1920	2	IIIGG,V
			PALE				1917.0	1919.3	2				V
			HARV				1932	2400	1				I
			HARV				2022	2032	2	2022	2032	2	IIIGG
			PALE				2022.8	2032.0	1				G
	2045	2400	CULG	2045	2400	1							IS
			CULG				2105	2130					IN,W
			CULG				2155.5						IIIB,W
			CULG							2200	2200.5	1	IIIB
			HARV				2201	2202	2	2201	2202	1	IIIGG
			CULG				2201.5	2202	1	2201.5	2202	2	IIIG
			HARV	2304	2305	2	2304	2305	2				IIIG
			CULG	2304.5	2305	2	2304.5	2305	1				IIIG
			CULG				2313.5	2314	1				IIIG
			LEAR				2313.9	2314.1	1				III
			HARV				2314		2				IIIG
25	0000	0745	CULG	0000	0405	1							IN
			LEAR				0053.0	0053.3	1				III
			CULG	0054.5	0055	2							IIIG,U
			LEAR				0056.6	0056.8	1				III
			CULG				0132	0738					IIIN,W
			LEAR				0132.6	0132.8	1				III
			LEAR				0137.4	0138.6	1				III
			CULG				0153		3	0153		2	IIIB
			LEAR				0153.0	0153.5	2				III
			CULG				0200.5	0202.5	2				IIIG,V
			LEAR				0200.7	0204.8	2				III
			CULG	0204.5	0205	2	0204.5	0205	2				IIIG
			CULG				0229.5	0230	1				IIIG
			LEAR				0229.7	0230.2	2				III
			LEAR				0309.0	0341.8	2				III
			LEAR				0326.7	0327.1	1				III
			LEAR				0339.0	0341.8	2				III
			CULG	0339.5	0341	2	0339	0342	3	0340.5	0341	1	IIIG,V
			CULG				0349	0352.5	1	0349	0352.5	1	IIIGG
			LEAR				0349.2	0353.3	1				III
			CULG	0357	0357.5	1	0357	0358	2				IIIG
			LEAR				0357.0	0358.2	2				III
			CULG	0405	0745	1							IS
			CULG				0420	0608	1				IS,DC
			LEAR				0421.8	0422.7	1				III
			CULG				0516	0517	2				IIIB,V
			LEAR				0516.1	0520.7	3				V
			CULG	0517.5	0518	1	0517.5	0519.5	3	0517.5	0518	2	IIIG,V
			CULG				0523	0525	2	0524	0524.5	1	IIIG
			LEAR				0523.2	0525.4	2				V
			LEAR				0539.1	0542.6	2				III
			CULG	0539.5	0542	2	0539	0542	1				IIIGG
			CULG				0603	0745					IN,W
			CULG				0614	0701	1				IIIN
			LEAR				0646.8	0648.5	1				III
	0649	1622	WEIS				0652	1622	3				IS,DC
			WEIS				0700	1617	2				IIIN

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

FEBRUARY 1982

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
25			LEAR				0700.8	0701.7	1				III
			WEIS				0722.2	0725.7	2				IIIGG
			CULG				0723	0727.5	3				IIIG,U,V
			LEAR				0732.8	0734.2	1				II
			LEAR				0752.1	0753.1	1				III
			WEIS				0837.3	0841.9	2				IIIGG
			LEAR				0838.7	0842.6	2				III
			LEAR				0927.4	0929.7	2				III
			LEAR				0940.4	0942.7	2				III
			WEIS				0947.3	0951.2	2				IIIGG
			LEAR				0949.6	0958.7	2				III
			WEIS				0958.4	0959.0	3				IIIG
			WEIS				1231.3	1237.1	3				IIIG/V
			SGMR				1233.8	1236.1	2				V
	1342	2355	HARV				1350	1700	2				IC
			HARV	1445	2219	1							INW
			WEIS				1445	1622	2				CONT
			HARV				1700	2355	1				IN
			HARV				1738	1740	2	1738	1740	2	IIIG
			PALE				1739.8	1740.5	1				III
			HARV				1800	2310	2	1800	1810	1	IIIN
		1909	HARV	1904	1907	2	1904	1909	2	1906	1909	2	IIIGG,V
			PALE				1942.8	1944.0	2				V
			HARV				1943		2	1943		2	IIIG
			SGMR				1943.2	1443.9	1				III
			HARV	1957	2009	1							IV
			HARV	2002	2021	2	2002	2017	3	2007	2017	2	IIIGG
			PALE				2006.9	2007.1	1				III
			PALE				2016.0	2029.8	1				G
			HARV				2025	2033	2	2029		2	IIIGG
			CULG				2045	2354					IIIN,W
	2045	2400	CULG	2045	2253		2045	2400					IN,W
			CULG	2202.5	2203	2	2203	2203.5	3	2203	2203.5	2	IIIG
			HARV				2203		3	2203		2	IIIG
			PALE				2205.0	0416.0	1				CONT
			CULG				2207	2344.5	1				IIIN
			CULG	2216	2219	1							IS
			CULG				2238.5	2240	2	2239	2239.5	1	IIIG,V
			LEAR				2238.9	2239.3	1				III
			HARV				2239	2240	2	2239	2240	1	IIIG
			CULG				2250.5	2251	1				IIIB,U
			CULG	2315.5	2316	1	2315.5	2316.5	3				IIIG,V,:
			LEAR				2315.7	2316.6	2				III
			HARV				2316	2327	3	2320		1	IIIGG,V
			LEAR				2319.9	2322.6	2				III
			CULG	2320		2	2320	2321	3				IIIG,V
			CULG				2335	2336	1	2335	2336	1	IIIG
			LEAR				2335.0	2336.0	1				III
			HARV				2338	2342	2				IIIGG
			LEAR				2348.8	2349.1	1				III
			CULG				2349	2349.5	1	2349	2349.5	1	IIIB
26	0000	0745	CULG				0000	0745					IIIN,W
			CULG	0048	0745	1							IN
			CULG							0115	0337		IIIN,W
			LEAR				0210.5	0210.7	1				III
			LEAR				0215.6	0216.1	1				III
			LEAR				0229.6	0229.8	1				III
			CULG	0312	0709	2	0210	0725	1				IN
			CULG				0320.5	0322	2				IIIGG
			LEAR				0320.8	0326.2	1				III
			CULG							0324	0340		S,W,F,W
			CULG				0324.5	0326	2				IIIGG
			CULG				0328	0337	2	0328	0337	1	IIIS,U
			LEAR				0328.0	0337.7	2				III
			CULG	0328.5	0632	1	0514	0709.5	1				IIIN
			CULG	0334.5	0337	1	0335	0336.5	3	0335	0336	2	IIIG,V
			CULG				0340	0743					IN,W
			CULG	0425.5	0426.5	2	0425	0427	3				IIIG,V
			LEAR				0425.7	0426.8	2				III

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

FEBRUARY 1982

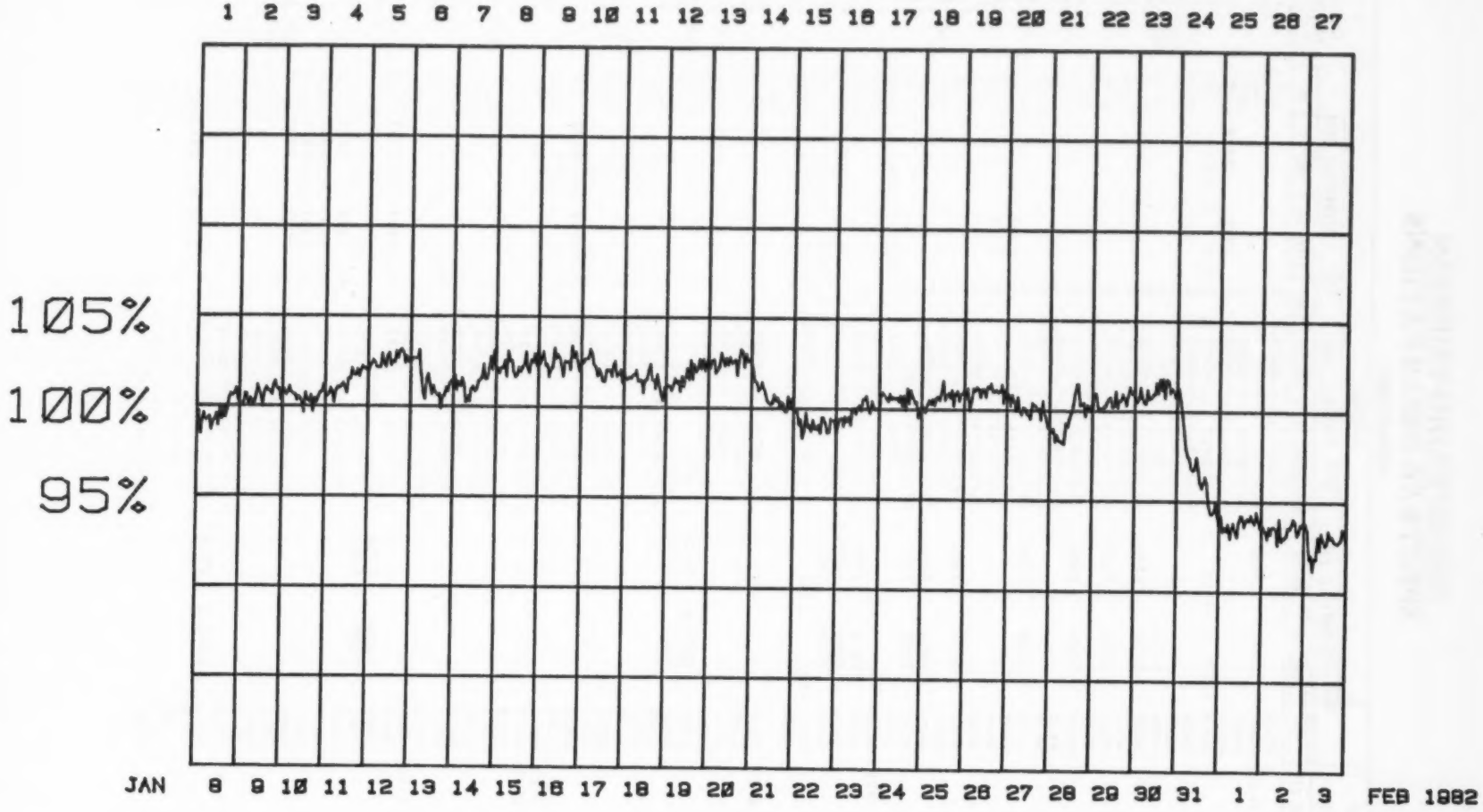
DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
26			LEAR				0514.3	0514.5	1				III
			LEAR				0557.3	0557.5	1				III
			LEAR				0605.2	0605.4	1				III
			LEAR				0615.3	0633.4	2				G
			CULG	0624.5	0625	2	0624.5	0626	2	0625	0625.5	2	IIIG
			LEAR				0704.6	0711.4	1				III
	0909	1623	WEIS				0704.9	0711.2	1				IIIGG
	0657	0905	WEIS				0706	1501	2				IN,DC
			WEIS				0805.5	0807.9	1				IIIGG
			WEIS				0810.7	0810.8	1				IIIB
			WEIS				0820.6	0821.3	1				IIIB
			WEIS				0822.7	0824.7	2				IIIG
			WEIS				0826.5	0826.7	1				IIIG
			WEIS				0828.3	0828.6	1				IIIG
			WEIS				0830.4	0831.3	1				IIIG
			WEIS				0937.1	0937.4	1				IIIG
			WEIS				1241.7	1242.1	2				IIIG
			WEIS				1252.8	1252.9	1				IIIB
			WEIS				1254.9	1255.0	1				IIIB
			WEIS				1323.1	1323.3	2				IIIG
	1345	2400	HARV				1351	1447	2				I
			WEIS				1352.2	1352.3	1				IIIB
			WEIS				1437.9	1438.2	2				IIIGG
			HARV	1445	2307	1							INW
			HARV				1448	2340	1				IN
			WEIS				1515.9	1521.3	3				IIIGG
			HARV	1516	1523	2	1516	1523	2				IIIGG
			WEIS	1523.0	1523.1	1							IIIB
			HARV	1609	1615	2	1610	1616	3	1612	1614	2	IIIGG,V
			WEIS				1612.0	1614.9	3				IIIGG
			SGMR				1612.8	1614.0	2				V
			HARV				1638	1641	3				IIIGG
			HARV				1719	2058	2				IIIN
			HARV				2005		2				IIIG,U
			HARV				2041	2042	2				IIIG
	2045	2400	CULG				2045	2400	1				IS,C
			CULG				2045	2316					IIIN,W
			HARV	2122	2123	2	2122	2123	2				IIIG
			CULG	2123	2300	1							DCIM,N
			CULG	2123.5	2313	2							IIIN
			HARV	2202	2012	2	2202	2012	2				IIIGG
			CULG	2202	2203	2	2202.5		1				IIIG
			CULG	2206	2207.5	2	2206	2207.5	1				IIIGG
			HARV	2255	2300	2	2255	2300	2				IIIGG
			HARV	2312	2313	2	2312	2313	2				IIIG
			LEAR				2352.5	1037.0	1				CONT
27	0000	0740	CULG				0000	0740	1				IS
			CULG				0041	0740					IIIN,W
			CULG	0154	0501.5	2							DCIM,N
			CULG	0206	0309	1	0206	0653	1				IIIN
			CULG				0253	0740	1				DC,N
			CULG				0315	0410	1				CONT
			CULG	0509	0510	3	0509	0510.5	3				IIIGG,U
			LEAR				0509.3	0510.8	2				III
			CULG	0518	0518.5	3							IIIG
			CULG				0525	0545	2				CONT
			CULG	0526	0715	2							IN
			CULG	0528	0605	3	0545	0740	1				CONT
	0646	0900	WEIS				0647	1617	2				IS
	0911	1626	WEIS				0654	1611	2				IIIN
			WEIS				0702.7	0703.9	2				IIIG
			CULG				0703	0703.5	2				IIIG
			CULG	0707		1	0707	0707.5	3				IIIG
			LEAR				0707.2	0707.6	2				III
			WEIS				0707.3	0708.3	3				IIIG
			WEIS				0810.6	0812.6	3				IIIGG
			WEIS				0835.5	0837.3	3				IIIGG
			LEAR				0836.2	0837.1	2				III
			WEIS				1309.4	1311.7	3				IIIGG

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

FEBRUARY 1982

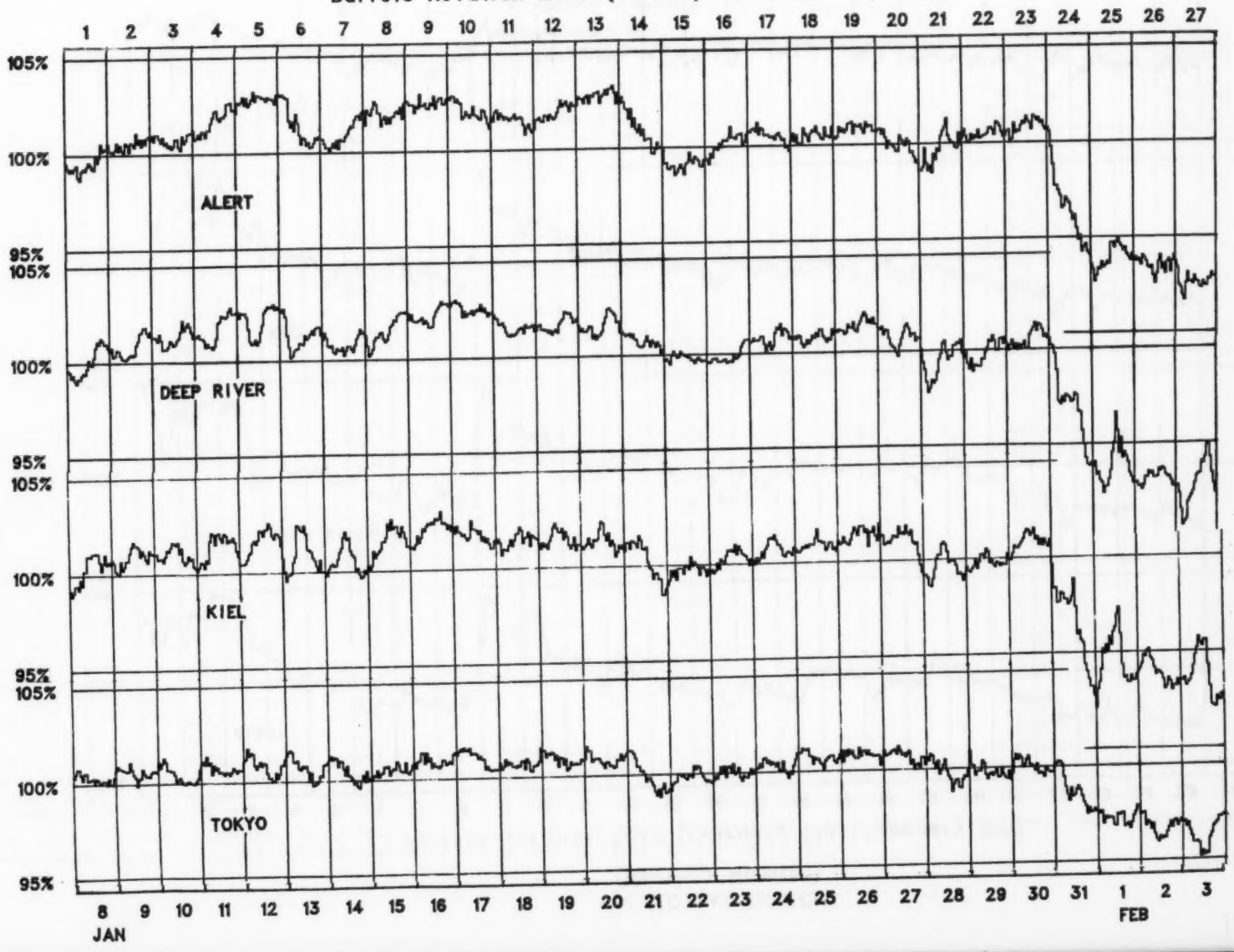
DAY	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS: DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
27			WEIS				1337.9	1339.3	3				IIIG
	1345	2400	HARV	1355	2400	1							INW
			HARV				1357	1834	1				I
			HARV				1401	2138	2	1835	2138	2	IIIN
			HARV				1407	1432	2				IIIGG
			HARV				1453	1458	2				IIIGG
			WEIS				1453.2	1456.3	3				IIIGG
			HARV	1515		2	1515		2				IIIG
			HARV	1532	1535	2	1532	1535	2				IIIG
			WEIS				1532.1	1532.4	3				IIIG
			HARV	1552	1553	2	1543	1553	2				IIIGG
			WEIS				1552.3	1553.3	3				IIIG
			HARV	1605	1608	2	1605	1608	3				IIIGG
			WEIS				1605.3	1605.7	3				IIIG
			WEIS				1606.4	1608.3	1				IIIG
			HARV	1706	1709	2	1707	1709	2				IIIG
			HARV				1715		2	1715		1	IIIG
			HARV				1756		2	1756		2	IIIB
			HARV				1834	2120	2				IC
			HARV	1858	1901	2	1858	1901	2				IIIGG
			PALE				1948.6	1949.0	1				III
			HARV	2010	2011	2	2010	2011	2				IIIG
			HARV	2023	2034	2	2023		1				IIIGG
			CULG				2046	2337					IIIN,W
	2046	2400	CULG				2046	2400					IS,W,C
			HARV	2058	2100	2	2058	2100	2				IIIGG
			CULG	2058	2058.5	2							DCIM
			CULG	2059	2400								IN,W
			CULG				2109	2138	1				IIIN
			HARV				2120	2400	1				IN
28	0000	0745	CULG				0000	0430					IS,W,C
			LEAR				0024.5	1037.0	1				CONT
			CULG				0025	0740	1				IIIN
			CULG				0026	0745					IIIN,W
			CULG	0122.5	0123	2							IN
			CULG	0327	0328	1							DCIM
			LEAR				0347.3	0349.5	2				V
			PALE				0348.0	0348.3	1				III
			LEAR				0437.0	0438.9	2				III
			CULG				0503	0509	1				II
			CULG				0507	0745					IS,W,C
			CULG				0538.5	0539	2	0538.5	0539	1	IIIB
			LEAR				0538.6	0539.2	2				III
	1135	1627	WEIS				0645		1				IN
	0644	0945	WEIS				0655	1624	2				IIIN
			CULG				0706	0726	1				IIIS
			WEIS				0738.3	0740.4	2				IIIG
			LEAR				0825.4	0825.6	2				III
			WEIS				0825.5	0825.8	3				IIIG
			WEIS				0836.2	0838.4	3				IIIGG
			WEIS				1150	1325	1				CONT
	1345	2400	HARV				1358	2037	1				IN
			HARV				1416	2237	2	1635	2009	2	IIIN
			HARV	1418	2354	1							INW
			HARV	1528	1529	1	1528	1529	2				IIIG
			HARV				1635	1637	2	1635	1637	1	IIIG
			HARV				1809	1812	2	1809	1812	2	IIIG
			HARV				1916	1921	2	1917	1921	1	IIIG
			HARV				2002	2009	2	2003	2009	2	IIIG
			PALE				2006.7	2006.9	2				III
			HARV				2037	2400	2				IC
			CULG				2045	2400					IIIS,W
	2045	2400	CULG				2045	2400					IS,C
			CULG	2222.5	2223	1	2222.5	2223.5	1				IIIG
			CULG							2222.5	2223.5		IIIG,W
			LEAR				2253.0	1036.0	1				CONT
			CULG				2342.5	2343.5	1				IIIG
			HARV				2343		2				IIIG

THULE NEUTRON MONITOR



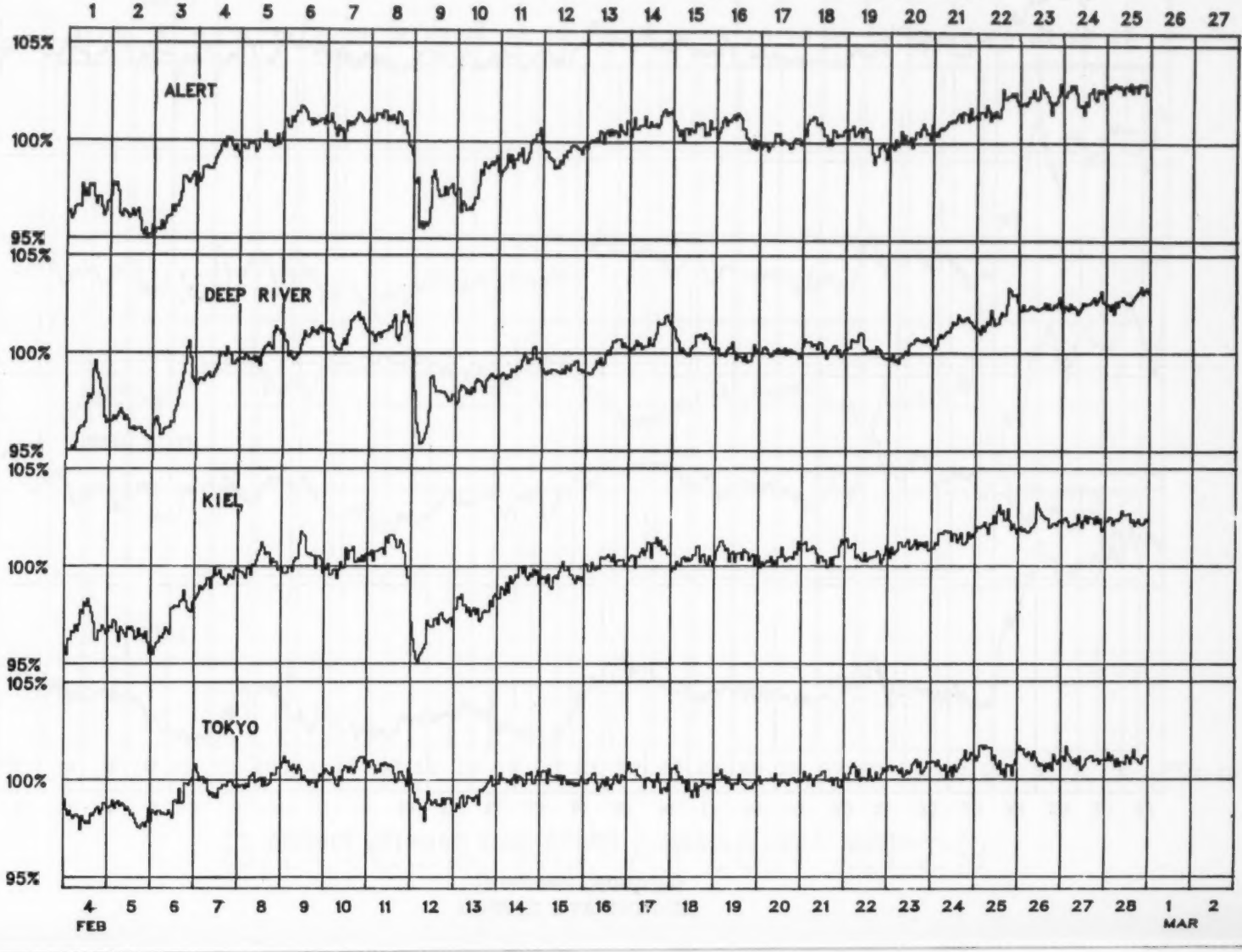
BARTELS ROTATION 2029

COSMIC RAY INDICES
(Neutron Monitor)


COSMIC RAY INDICES
(Neutron Monitor)
Bartels Rotation 2029 (January 1982–February 1982)
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27
105%
100%
95%
ALERT
DEEP RIVER
KIEL
TOKYO
8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 1 2 3
JAN
FEB

COSMIC RAY INDICES
(Neutron Monitor)

Bartels Rotation 2030 (February 1982–February 1982)



COSMIC RAY INDICES

(Neutron Monitors)

FEBRUARY 1982

Feb 1982	THULE Average (cts/h)/100	ALERT Average (cts/h)/100	DEEP RIVER Average (cts/h)/300	KIEL Average (cts/h)/100	CLIMAX Average (cts/h)/100	TOKYO Average (cts/h)/100	HUANCAYO Average (cts/h)/100)
1	3875	6357.9	5994.5	5455.5		3477.0	
2	3862	6331.6	5948.1	5417.6		3458.1	
3	3833	6270.8	5926.1	5408.0		3444.2	
4	3869	6350.3	6981.3	5433.0		3468.1	
5	3842	6308.9	5947.5	5414.4		3470.5	
6	3879	6342.2	6020.8	5449.1		3487.0	
7	3967	6500.2	6130.8	5563.6		3522.3	
8	3990	6548.3	6185.4	5614.1		3530.0	
9	4045	6630.2	6214.9	5627.2		3542.2	
10	4036	6612.8	6242.7	5614.4		3597.6	
11	4051	6618.5	6251.8	5650.9		3548.2	
12	3894	6367.3	6016.8	5418.6		3492.6	
13	3921	6408.4	6072.6	5486.6		3501.5	
14	3989	6512.4	6135.4	5566.0		3531.6	
15	3992	6513.4	6123.1	5575.4		3532.1	
16	4022	6580.4	6167.3	5614.4		3527.5	
17	4043	6622.5	6226.5	5647.6		3530.8	
18	4030	6599.3	6208.1	5621.7		3524.3	
19	4023	6598.6	6173.7	5641.3		3526.1	
20	3988	6554.1	6180.1	5627.5		3528.6	
21	4021	6597.9	6192.7	5641.1		3531.2	
22	4010	6564.0	6194.5	5641.1		3538.6	
23	4022	6575.8	6191.1	5660.2		3550.3	
24	4051	6627.8	6254.4	5686.5		3557.4	
25	4064	6678.0	6298.7	5731.1		3565.8	
26	4070	6708.3	6322.2	5729.1		3566.6	
27	4076	6715.5	6329.9	5732.6		3565.3	
28	4098	6743.0	6346.1	5738.9		3565.7	
MEAN	3984	6530.0	6152.8	5586.0		3522.6	

Data not available at time of publication.

Data not available at time of publication.

For less than 24-hour coverage, parentheses enclose the number of hours for which data are available. For Climax and Huancayo, parentheses enclose the number of section hours whenever the sum of both sections falls below 40 hours.

GEOMAGNETIC ACTIVITY INDICES

FEBRUARY 1982

Day		Three-Hourly Indices Kp									Ap	Cp	Three-Hourly Indices Km								Am	aa			
		1	2	3	4	5	6	7	8	Sum			1	2	3	4	5	6	7	8		N	S	M	
1		2	3	2+	5	6	5-	6	5	34	41	1.5	2	2+	2-	5-	6-	4+	6-	5	69	59	62	34	87
2	D1	5	6	7	6	6-	5	3-	3-	40	60	1.7	4+	5	6	6-	5+	4+	3-	3-	86	69	105	121	53
3		4-	5-	5	4+	5-	4+	4	5-	35+	35	1.4	4+	4+	5-	4	4+	4-	4-	4	61	48	83	65	67
4	D4	5+	5+	5-	5	5+	4+	5-	6-	40+	49	1.6	5-	4	4-	4+	5	4	5-	5	71	74	72	58	88
5		6	6	3	4-	3	5-	3+	4	34-	37	1.4	5	5-	3	3+	3	5-	4-	4-	55	54	66	66	54
6		3+	4	5	5-	4-	5+	5+	5	36+	39	1.4	3	4-	5-	4	4-	5+	5	5-	67	61	70	61	69
7	Q9A	5+	5	4-	4-	2	3-	3+	4	30-	26	1.2	4+	4-	3	3	2	3-	3	3+	36	44	44	52	37
8	Q6A	4	3+	2+	4-	3-	3-	4	3+	26	18	1.0	3+	3-	2+	4-	3-	3	4+	3	34	27	59	46	41
9	Q4A	4-	4-	3	3	3+	2+	2+	3-	24	15	0.9	3	3	2+	3	3	2	2	3-	24	20	32	33	20
10		3	3	2+	5+	5+	6-	4+	4+	33+	35	1.4	2+	2	2	5-	5+	5+	4	4	56	57	53	31	79
11	D5	4+	5+	4	3	5	6-	4+	6	38-	45	1.5	4-	4+	3+	3-	5-	5	4+	6-	68	69	59	43	85
12		6	4-	2-	4+	5+	3+	5+	5+	35	41	1.5	6-	3+	1+	4-	4	4-	5	5-	62	75	68	61	82
13	D2	5+	4+	5+	5-	5	5	5+	6+	41+	54	1.6	4	4-	4	5-	5-	5+	5	5+	80	73	75	55	93
14		4	6-	6-	4	4+	4	5+	4+	37+	42	1.5	3+	4+	4+	4-	4+	4	5-	4	60	52	51	48	55
15	Q5A	4-	3+	4+	4	4	3	1-	1-	24-	18	1.0	3+	3	3+	3+	4+	3	1	0+	30	24	36	37	24
16	Q1	2-	2+	1	2	2+	2-	2-	1-	13+	6	0.3	1+	2-	1	1	3-	2-	2-	0+	11	12	11	10	13 C
17		0+	2+	4	5	5-	5-	5-	5-	30+	30	1.3	0	2+	4	5-	5-	4+	5-	4+	57	50	48	34	64
18		4-	4	5	4-	4+	4-	5-	5+	34+	34	1.3	3	3+	4	3-	4	3	4	5-	46	59	48	47	60
19		4+	6-	5	4-	5-	4	4+	4-	35+	36	1.4	4-	5-	4+	3	4+	4-	4	3+	53	57	42	50	50
20	Q0A	3+	3	5-	4	4-	3+	4	5-	31-	26	1.2	3	3-	3+	3+	4-	3	4-	4-	37	45	37	36	46
21	Q7A	3	2-	3-	5+	5-	2	3+	3+	26	21	1.1	3-	1+	3-	4	4	2	3+	4-	32	35	35	33	37
22	D3	3+	5-	3-	4	5+	5	7-	6+	38	51	1.6	3+	4-	3-	4-	5	5	6	5+	75	83	66	45	105
23		6	3	2	3+	3	5-	4	4+	30+	29	1.3	5+	2+	2	3-	3	4+	4	4-	46	41	44	37	48
24	Q8A	5	4+	3+	3	4-	3-	2+	5-	29	24	1.2	4-	3+	3	3-	4-	2+	2+	4+	36	36	33	36	33
25		4+	6+	5+	5	5-	4-	4+	3-	36+	42	1.5	4-	5-	5-	4+	4-	3+	4	2+	55	60	56	70	46
26		4+	6-	5	5	3+	3	5	6-	37	43	1.5	4	5-	4+	4	3	3	4+	5-	57	68	44	65	46
27	Q2A	3	3-	2+	4-	3	2	2	2+	21	12	0.7	2+	2	2-	3-	2+	2+	2+	2+	18	24	18	22	19
28	Q3A	2	1-	2-	2	2-	3-	4+	2	17	10	0.6	2-	1	1	2-	2	2+	4-	2	16	21	16	11	26
										Mean	33	1.27									49.9	49.9	51.2	50.6	

Day	Three-Hourly Indices Kn								An	Three-Hourly Indices Ks								As
	1	2	3	4	5	6	7	8		1	2	3	4	5	6	7	8	
1	2	2+	2-	4+	5+	4	6-	5-	62	2	2	2-	5	6	5-	6-	5	76
2	4	5-	6	6	6-	5-	3-	2+	86	5-	5+	6	6-	5	4	3-	3-	86
3	4-	4	4	4-	5-	4	4-	4+	55	5	5-	5	5-	4+	3+	4+	4-	67
4	5-	4	4-	4+	5-	4	4+	4+	65	5-	4	4-	4	5	4	5	5+	77
5	5	5-	3-	3	3-	5-	4-	4-	52	5+	5-	4-	3+	3	5-	4-	4-	58
6	3	3	4+	4	4-	5	5-	4+	59	3+	4	5	4	4-	6-	5	5	74
7	4+	4-	3	3	2+	3	3	3+	36	5-	4-	3	3	2-	3-	3+	4-	36
8	3	3-	2	3+	3-	3+	4+	3-	33	4-	2+	3-	4-	3-	3	4+	4-	36
9	3-	3	2	3-	3-	2	2	3-	21	3	3+	3-	3	3+	2	2	3-	27
10	2+	2-	2-	5-	5	5	4	4-	51	2	2	2	4+	5+	6-	4	4+	60
11	3+	4	3	3-	5-	5	4	5+	59	4	5-	4-	3	5	5	5-	6-	76
12	5	3	1+	4-	4	3+	5+	5-	56	6	3+	1+	4	4+	4	5-	5	69
13	4+	3+	4	4+	5-	5	5	5	73	4-	4	4	5-	5	6-	5	6-	88
14	3+	5-	4+	4-	4	4	5-	4-	58	3+	4	4+	4	5-	4-	5-	4+	61
15	3	3-	3+	3+	4+	3+	1+	0+	31	4-	3+	3	4-	4	2+	1-	0+	30
16	1+	2-	1	1	2+	2	2-	0+	11	2-	2-	1	1+	3	2-	2-	0+	12
17	0	2-	4	5-	5	4+	5-	4+	57	0	3-	4	5-	5-	4+	5-	5-	56
18	3	3+	4	3-	4+	3	4	5-	48	3+	4-	4-	3-	4-	3-	4	5-	44
19	4-	5-	4-	3	5-	4-	4	3+	51	4	5-	5-	3	4+	4-	4	3+	55
20	3	3	4-	4-	4-	3+	4	4-	41	3	2+	3	3	3	3	3+	4-	33
21	3-	1	3-	4	4+	2	3+	3+	33	3	1+	3-	4-	4-	2	3	4-	30
22	3-	4-	2+	4-	5	5-	6	5	69	4-	4-	3	4-	5	5	6	6-	82
23	5	2+	2-	3-	3	4	4	4-	41	6-	2+	2+	2+	3-	5-	4+	4-	50
24	4	4-	3	3-	4	2+	3-	4	37	4-	3+	3	2+	4-	2	2+	5-	35
25	3+	5	4+	4	4-	3+	4+	2+	53	4	5-	5	4+	4-	3+	4	2+	56
26	4-	5-	5-	4	3	3	4+	5	57	4	5-	4	4	3	3-	5-	5-	57
27	2+	2	2-	3	3-	2+	2+	2+	19	2+	2+	2	3-	2+	2+	2+	2+	18
28	2-	1	1	2	2	3-	4-	2+	18	2-	1	1	1+	2	2-	3+	2	14
								Mean	47.6									52.3

ERRATA:

Conversion in 1979 to a new computer with a different word size caused values of indices aa to be truncated if they exceeded 99; the machine read and printed only the two least significant digits. Correct values of the affected indices are listed below. Both half-daily values are given, too, to make clear which of the two entries should be corrected.

Date	N	S	M
21 Feb 1979			66 102
10 Mar			54 101
25 Apr	109		27 148
26 Apr			103 15
13 Aug			53 108
20 Aug			33 100
29 Aug			59 111
18 Sep			100 63
25 Jul 1980			13 100
19 Dec	118	123	63 178
06 Feb 1981			24 116

NOTE:

aa indices are provisional from 1 January 1981 until further notice, in connection with the change of the Southern Hemisphere observatory.

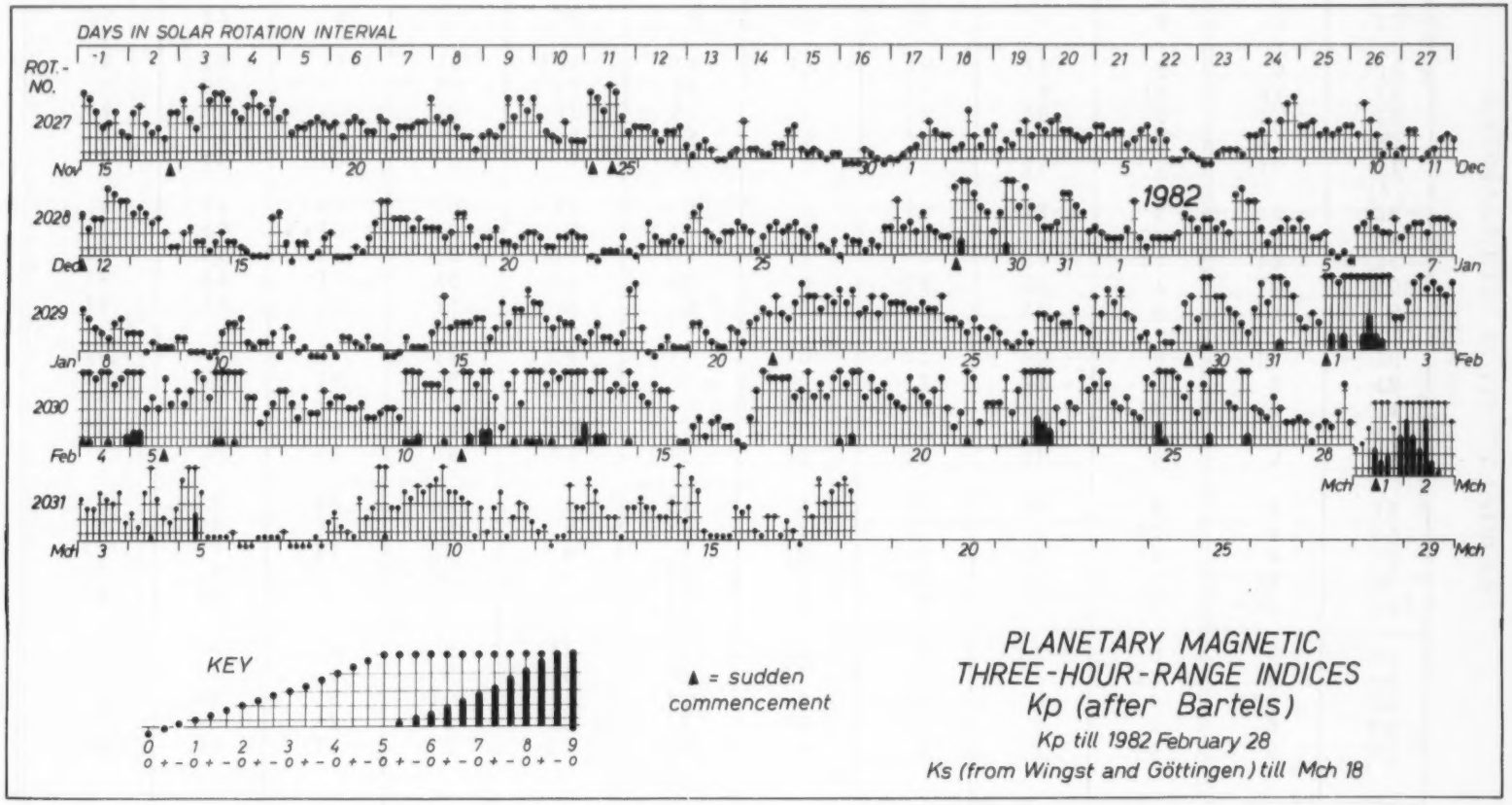
Quiet days (Q) and disturbed days (D), geomagnetic planetary three-hour-range indices (Kp) (integers alone are equivalent to those normally given with a small zero), magnetic character figures (Cp), and average amplitude (Ap) (unit 2 nT) prepared by Geophysikalisches Institut at the University of Göttingen, F.R. of Germany for the International Service of Geomagnetic Indices. Ten most quiet days [Q1-Q0(10)] and five most disturbed days [D1-D5] are ordered from most quiet or disturbed, respectively. A or K means "not really quiet" (A = "Ap>6", K = "Ap≤6 but one Kp>30 or two Kp values≥3-"); An asterisk means "not really disturbed" (Ap<20).

Geomagnetic three-hourly indices Km, Kn, Ks, daily mean values Am, An, As (unit 1nT), and indices aa are prepared by M. Menvielle of the Institut de Physique du Globe, Paris, France. For aa indices daily north (N) and south (S) values, and half-daily antipodal mean (M) values are given. Quiet 24-hour and 48-hour intervals centered on 1200 UT are indicated for really quiet as C and for quiet but with some slightly disturbed three-hour intervals as K. The first hundred years series of aa is in IAGA Bulletin No.33, and complementary data are in IAGA Bulletin No.39.

DAILY AVERAGE INDICES Ap

DAY	1981 MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	1982 JAN	FEB
1	28	23	16	7	17	18	5	9	7	6	9	41
2	25	10	7	7	22	15	18	22	5	9	9	60
3	8	14	5	16	9	18	9	36	8	8	20	35
4	12	11	4	5	9	11	11	17	6	10	12	49
5	81	4	4	6	12	15	17	7	11	9	4	37
6	11	10	5	14	19	14	8	6	9	4	10	39
7	20	9	5	50	14	10	5	32	19	3	12	26
8	10	11	11	16	8	4	10	25	27	15	9	18
9	4	8	39	4	6	7	11	21	4	10	4	15
10	8	8	32	4	4	16	9	27	13	9	4	35
11	7	39	61	6	13	15	21	46	31	6	5	45
12	11	96	13	4	20	9	10	12	39	23	2	41
13	28	121	10	5	9	9	12	17	5	12	4	54
14	45	27	18	4	7	8	10	73	27	6	3	42
15	19	8	54	11	4	13	10	20	20	6	12	18
16	14	13	59	21	8	8	7	8	17	4	17	6
17	18	19	13	10	29	25	4	18	32	7	10	30
18	19	14	57	10	10	23	18	6	26	14	13	34
19	10	45	18	10	9	10	38	23	14	10	3	36
20	9	53	43	10	12	8	9	67	13	6	6	26
21	8	41	12	7	6	14	7	33	15	6	14	21
22	4	33	6	5	24	13	13	72	11	3	27	51
23	4	31	19	5	37	56	4	27	20	6	22	29
24	4	22	18	13	13	28	7	18	9	10	21	24
25	36	19	33	15	134	16	13	18	27	8	9	42
26	28	62	8	14	78	8	32	10	9	6	7	43
27	14	43	6	10	24	25	21	10	4	6	13	12
28	12	13	12	9	8	18	6	19	6	12	17	10
29	18	19	6	33	5	18	14	12	4	32	11	
30	16	7	6	14	9	17	15	12	1	30	27	
31	26		8		12	15		4		18	34	
MEAN	18	23	20	12	19	15	12	23	15	10	12	33

GEOMAGNETIC ACTIVITY INDICES



PRINCIPAL MAGNETIC STORMS

FEBRUARY 1982

OBS. 3 letter code	GEOMAG-NETIC LATI-TUDE	COMMENCEMENT DAY	hr min (UT)	TYPE	SC - AMPLITUDES D(')	H(γ)	Z(γ)	MAXIMUM 3 HOUR - INDEX K DAY (3 HOUR PERIOD)	K	RANGES D(')	H(γ)	Z(γ)	UT END DAY	HOUR
SIT	60.0N	01	09--	..	..	..	..	02(5)	8	--	--	--	07	12
NEW	55.1N	01	1100	SC	5	9	..	02(3,4)	7	70	1132	560	--	--
WIT	54.2N	01	1101	SC*	- 2	30	0	01(5,7) 02(3,5)	6	30	190	120	02	17
HON	21.1N	01	1100	SC	..	14	5	02(2,3,4)	5	6	194	45	02	20
JAI	17.3N	01	1100	SC	- 0.5	29	- 6		-	6	165	51	05	10
SHL	14.7N	01	1100	SC	0.2	27	4		-	6	180	42	05	10
UJJ	13.5N	01	1100	SC	- 0.2	34	- 8		-	7	163	54	05	10
ABG	09.5N	01	1100	SC	- 0.5	27	5	01(5) 02(3,4,5)	6	5	149	59	05	10
HYB	07.6N	01	1100	SC	- 0.2	31	- 2	01(5,7) 02(3,4,5)	6	5	168	33	02	21
ANN	01.5N	01	1100	SC	- 1.1	35	19		-	8	211	85	05	10
TRD	01.1S	01	1100	SC	0.2	34	45		-	5	273	214	05	10
PMG	18.6S	01	0859	SC	0.4	39	30	02(4)	7	14	200	120	03	00
HER	33.7S	01	1059	SC	5	32	34	01(5,7) 02(4)	6	47	165	201	02	23
GNA	43.2S	01	1059	SC*	- 3.2*	39	-23	02(3,4) 03(1) 04(5)	6	26	190	160	07	12
KGL	56.5S	01	1101	SC	6	58	12	01(5,7,8) 02(4)	7	--	--	--	02	19
NEW	55.1N	03	0131	SC	5	54	3	05(2)	6	42	191	339	--	--
WIT	54.2N	03	01--	..	..	..	..	05(1)	6	41	155	75	05	06
HON	21.1N	03	0128	SC	1	33	16	03(3) 04(5)	5	9	137	48	05	14
HYB	07.6N	03	0128	SC	- 1.2	29	- 4	03(2,3,5) 04(6,7)	5	6	170	41	05	10
PMG	18.6S	03	0128	SC	0.8	66	55	03(1,2,5,8) 04(5) 05(6)	5	12	180	120	07	06
HER	33.7S	03	0127	SC	5	23	24	03(3) 04(1) 05(1)	5	27	125	89	05	11
KGL	56.5S	03	0128	SC	4	43	-17	04(8) 05(1)	8	--	--	--	07	09
NEW	55.1N	05	1611	SC	9	18	6	06(3)	6	37	126	176	10	05
HON	21.1N	05	1616	SC	..	11	5	05(6)	4	5	87	40	07	12
JAI	17.3N	05	1612	SC	- 0.8	23	- 6		-	4	147	34	07	18
SHL	14.7N	05	1612	SC	0.0	21	5		-	4	143	48	07	18
UJJ	13.5N	05	1612	SC	- 0.4	27	- 5		-	4	156	33	07	18
ABG	09.5N	05	1612	SC	- 0.6	21	5	06(5,6,8)	5	5	164	31	07	18
HYB	07.6N	05	1611	SC	- 0.3	23	- 1	06(6)	6	4	188	21	07	06
ANN	01.5N	05	1612	SC	- 1.1	26	16		-	5	220	76	07	18
TRD	01.1S	05	1612	SC	..	25	32		-	--	--	--	07	18
HER	33.7S	05	1612	SC	1	18	10	06(6,7)	5	28	112	117	07	12
KGL	56.5S	05	1612	SC	3	32	17	06(6)	8	--	--	--	07	09
WIT	54.2N	06	16--	..	..	..	..	06(7)	7	26	215	80	07	06
KGL	56.5S	06	1751	SC	-26	18.0	80	06(6)	8	--	--	--	07	09
HYB	07.6N	08	0800	..	..	..	..	08(7)	4	3	116	19	09	22
COL	64.6N	10	09--	..	..	..	..	10(5) 11(6) 12(4) 13(4,6)	7	376	1590	110	15	19
SIT	60.0N	10	1106	SC	-17	-37.3	-23.7	11(5)	7	--	--	--	15	17
NEW	55.1N	10	09--	..	..	..	..	10(5)	6	44	200	287	15	20
FRD	49.6N	10	09--	..	..	..	..	10(5) 14(2)	6	36	155	98	15	15
HON	21.1N	10	1106	SC	..	11	5	10(5,6) 11(2,5,6)	4	7	84	17	11	12
JAI	17.3N	10	0800	..	..	..	..		-	4	251	25	11	00
SHL	14.7N	10	0800	..	..	..	..		-	4	224	41	11	00
UJJ	13.5N	10	0800	..	..	..	..		-	3	255	16	11	00
ABG	09.5N	10	0800	..	..	..	..	10(4,5)	6	5	257	34	11	00
HYB	07.6N	10	0700	..	..	..	..	10(6)	7	4	284	34	11	10
ANN	01.5N	10	0800	..	..	..	..		-	2	271	62	11	00
TRD	01.1S	10	0800	..	..	..	..		-	2	267	117	11	00
PMG	18.6S	10	10--	..	..	..	..	10(4,5,6)	5	9	130	90	11	00
GNA	43.2S	10	09--	..	..	..	..	12(11) 13(6) 14(5)	6	32	160	180	15	18
KGL	56.5S	10	1228	SC	8	42	11	10(6)	8	--	--	--	11	09
WIT	54.2N	11	1313	SC*	- 2	30	* 0	11(8) 12(1)	6	45	205	150	12	03
HON	21.1N	11	1312	SC	..	3	2	11(8) 13(4)	5	9	173	32	15	16
JAI	17.3N	11	1312	SC	- 0.5	20	- 4		-	7	135	35	13	23
SHL	14.7N	11	1312	SC	0.1	18	3		-	7	140	35	13	23
UJJ	13.5N	11	1312	SC	- 0.2	23	- 5		-	5	137	36	13	23
ABG	09.5N	11	1312	SC	- 0.5	18	3	13(6,7)	6	6	130	36	13	23
HYB	07.6N	11	1313	SC	- 0.2	21	- 1	13(6,7)	6	5	149	24	13	23
ANN	01.5N	11	1312	SC	- 0.8	26	12		-	6	178	81	13	23
TRD	01.1S	11	1312	SC	0.2	21	27		-	5	109	122	13	23
PMG	18.6S	11	1312	SC	0.2	22	18	12(1)	6	14	140	80	15	18
HER	33.7S	11	03--	..	..	..	..	11(6,8) 12(1,8) 13(8) 14(7)	5	49	130	148	15	04
KGL	56.5S	11	1312	SC	30	26	17	11(8) 12(1)	8	--	--	--	12	05

PRINCIPAL MAGNETIC STORMS

FEBRUARY 1982

OBS. 3 letter code	GEOMAG-NETIC LATI-TUDE	COMMENCEMENT DAY	hr min (UT)	TYPE	SC – AMPLITUDES D(')	H(γ)	Z(γ)	MAXIMUM 3 HOUR – INDEX K DAY (3 HOUR PERIOD)	K	RANGES D(')	H(γ)	Z(γ)	UT END DAY	HOUR
WIT	54.2N	12	0940	..	..	..	..	13(8)	7	51	285	125	14	24
JAI	17.3N	14	0312	..	..	..	..		-	4	75	13	15	00
SHL	14.7N	14	0312	..	..	..	..		-	3	88	32	15	00
UJJ	13.5N	14	0312	..	..	..	..		-	3	78	17	15	00
ABG	09.5N	14	0312	..	..	..	..	14(7)	5	3	81	24	15	00
HYB	07.6N	14	0300	..	..	..	..	14(7) 15(5)	5	3	119	26	15	18
ANN	01.5N	14	0312	..	..	..	..		-	4	121	48	15	00
TRD	01.1S	14	0312	..	..	..	..		-	3	134	106	15	00
HER	33.7S	17	04--	..	..	..	..	17(4) 18(8)	5	30	140	105	19	14
FRD	49.6N	17	06--	..	..	..	..	17(4,5) 18(8) 19(2) 21(4,5) 22(5,7,8) 23(1) 24(1,8)	5	28	180	99	27	XX
NEW	55.1N	17	03--	..	..	..	..	17(4,5,6) 18(3)	5	40	130	150	21	04
COL	64.6N	17	06--	..	..	..	..	18(3)	7	204	1270	950	21	03
SIT	60.0N	17	06--	..	..	..	..	17(4) 19(2)	7	--	580	400	21	00
WIT	54.2N	17	07--	..	..	..	..	18(7) 25(2,3) 26(2,8)	6	35	195	80	19	09
HYB	07.6N	17	0300	..	..	..	..	17(6)	6	4	202	41	20	23
PMG	18.6S	17	03--	..	..	..	..	17(3,4,5) 19(5)	5	12	140	80	20	15
COL	64.6N	21	17--	..	..	..	..	22(5,7) 25(3)	7	298	1810	190	27	05
NEW	55.1N	21	0727	SC	2	15	..	25(2)	7	59	209	280	28	04
WIT	54.2N	21	2019	SC*	- 1	17	* 0	22(7)	7	50	265	110	23	03
JAI	17.3N	21	0726	SC	- 0.2	12	- 3		-	5	164	33	23	03
SHL	14.7N	21	0726	SC	0.1	11	3		-	4	141	35	23	03
UJJ	13.5N	21	0726	SC	- 0.1	15	- 3		-	4	174	32	23	03
ABG	09.5N	21	0726	SC	- 0.1	12	3	21(4) 22(5,7)	6	5	189	32	23	03
HYB	07.6N	21	0727	SC	- 0.1	14	- 2	21(4,5)	5	3	137	18	21	22
ANN	01.5N	21	0726	SC	- 0.6	27	7		-	3	226	70	23	03
TRD	01.1S	21	0726	SC	0.1	32	33		-	2	255	103	23	03
PMG	18.6S	21	0727	..	0.2	14	12	22(6)	5	11	120	60	23	07
SIT	60.0N	22	02--	..	..	..	..	22(5)	7	--	--	690	27	04
HYB	07.6N	22	0200	..	..	..	..	22(5,7)	6	3	160	31	23	23
HER	33.7S	22	09--	..	..	..	..	22(7)	6	28	132	76	23	03
KGL	56.5S	22	0941	SC	3	21	11	22(6,7) 23(1)	8	--	--	--	23	07
JAI	17.3N	24	1000	..	..	..	..		-	7	109	43	27	02
SHL	14.7N	24	1000	..	..	..	..		-	6	118	47	27	02
UJJ	13.5N	24	1000	..	..	..	..		-	5	119	35	27	02
ABG	09.5N	24	1000	..	..	..	..	25(3) 26(3,4,8)	5	5	111	29	27	02
HYB	07.6N	24	0500	..	..	..	..	25(3,4)	5	3	126	20	25	22
ANN	01.5N	24	1000	..	..	..	..		-	6	189	65	27	02
TRD	01.1S	24	1000	..	..	..	..		-	5	--	124	27	02
HER	33.7S	24	22--	..	..	..	..	25(4) 26(2,8)	5	40	101	100	26	24
WIT	54.2N	26	01--	..	..	..	..	26(7,8)	6	38	155	50	27	01
HYB	07.6N	26	0200	..	..	..	..	26(4)	5	4	125	30	27	11

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SUDDEN COMMENCEMENTS AND SOLAR FLARE EFFECTS

FEBRUARY 1982

PRELIMINARY REPORT ON RAPID VARIATIONS

Sudden Commencements (ssc)

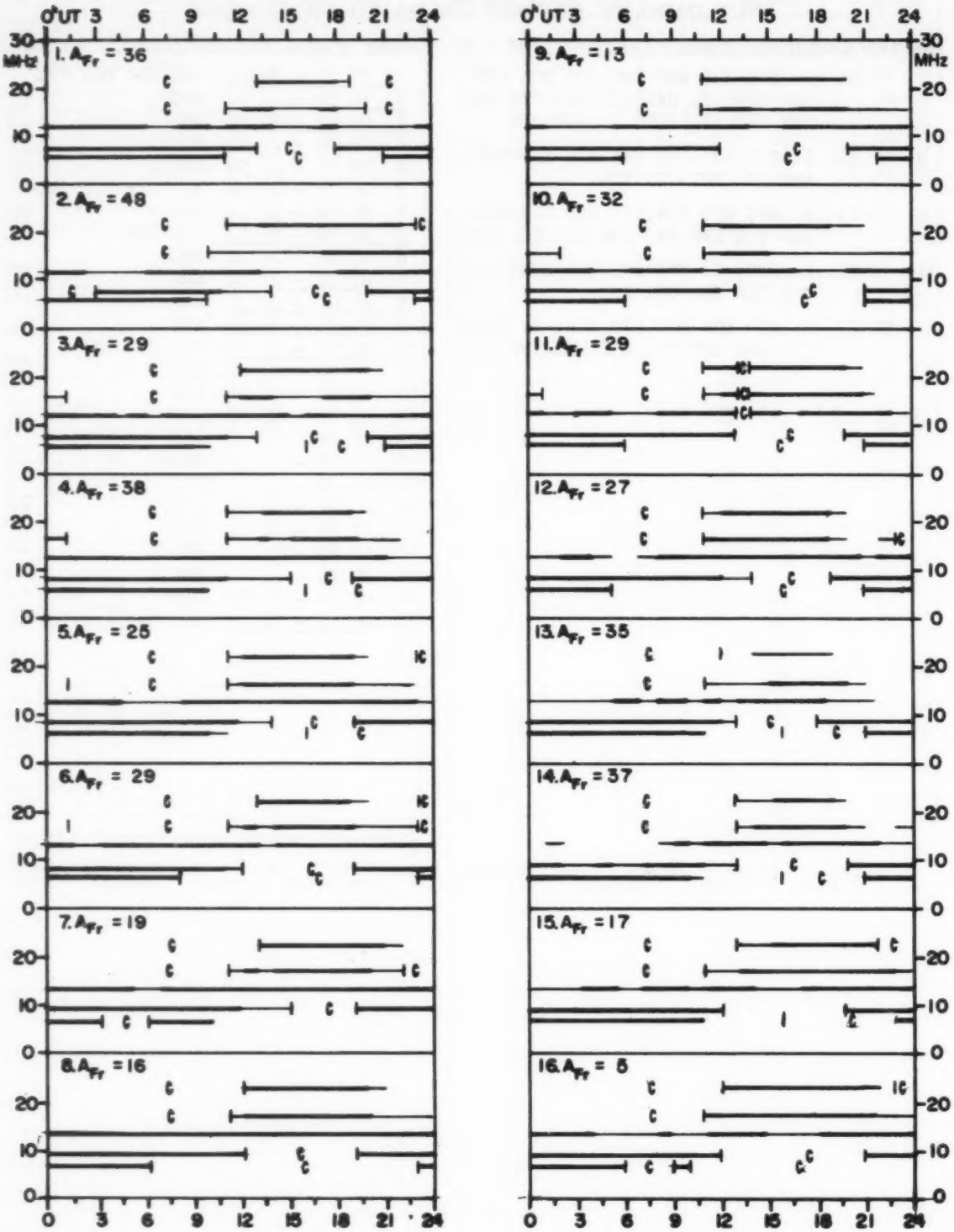
1	11	00	A: SOD NUR WNG DOU COI TOL LNP BNG GNA; B: HAD CLF AQU EBR KAK HTY KNY CZT DUM; C: NGK KGL
3	01	29	A: COI BNG; B: KAK HTY KNY LNP AMS; C: TOL CZT KGL
5	16	11	A: WNG DOU COI; B: HAD CLF AQU EBR TOL LNP BNG AMS CZT KGL DUM
11	13	13	A: BNG; B: WNG AQU TOL AMS; C: HAD CLF EBR CZT KGL
21	07	27	B: SOD WNG DOU BNG GNA; C: HAD CLF MMB EBR TOL KAK KNY LNP

Solar Flare Effects (sfe)

1	00	32 -	00 55	MMB KAK HTY KNY
2	10	30 -	.. ..	WNG
5	09	06 -	09 35	WNG
6	07	36 -	.. ..	BNG
6	23	51 -	23 55	LNP
7	09	38 -	09 58	NGK CLF TOL BNG
7	16	56 -	.. ..	BNG
8	02	40 -	02 50	KAK LNP
8	10	00 -	.. ..	BNG
9	03	37 -	03 52	KAK
9	04	07 -	04 37	KAK HTY
9	04	37 -	04 58	HTY
10	00	54 -	01 15	KAK HTY KNY
10	10	00 -	.. ..	BNG
11	00	46 -	00 48	LNP
14	03	39 -	03 42	LNP
17	08	24 -	08 26	LNP
17	08	48 -	.. ..	BNG
22	09	19 -	.. ..	BNG
23	03	18 -	03 50	HTY
23	11	02 -	.. ..	BNG
24	11	59 -	.. ..	BNG
25	10	24 -	.. ..	BNG
27	08	38 -	08 40	LNP
28	04	50 -	05 13	MMB KAK KNY LNP

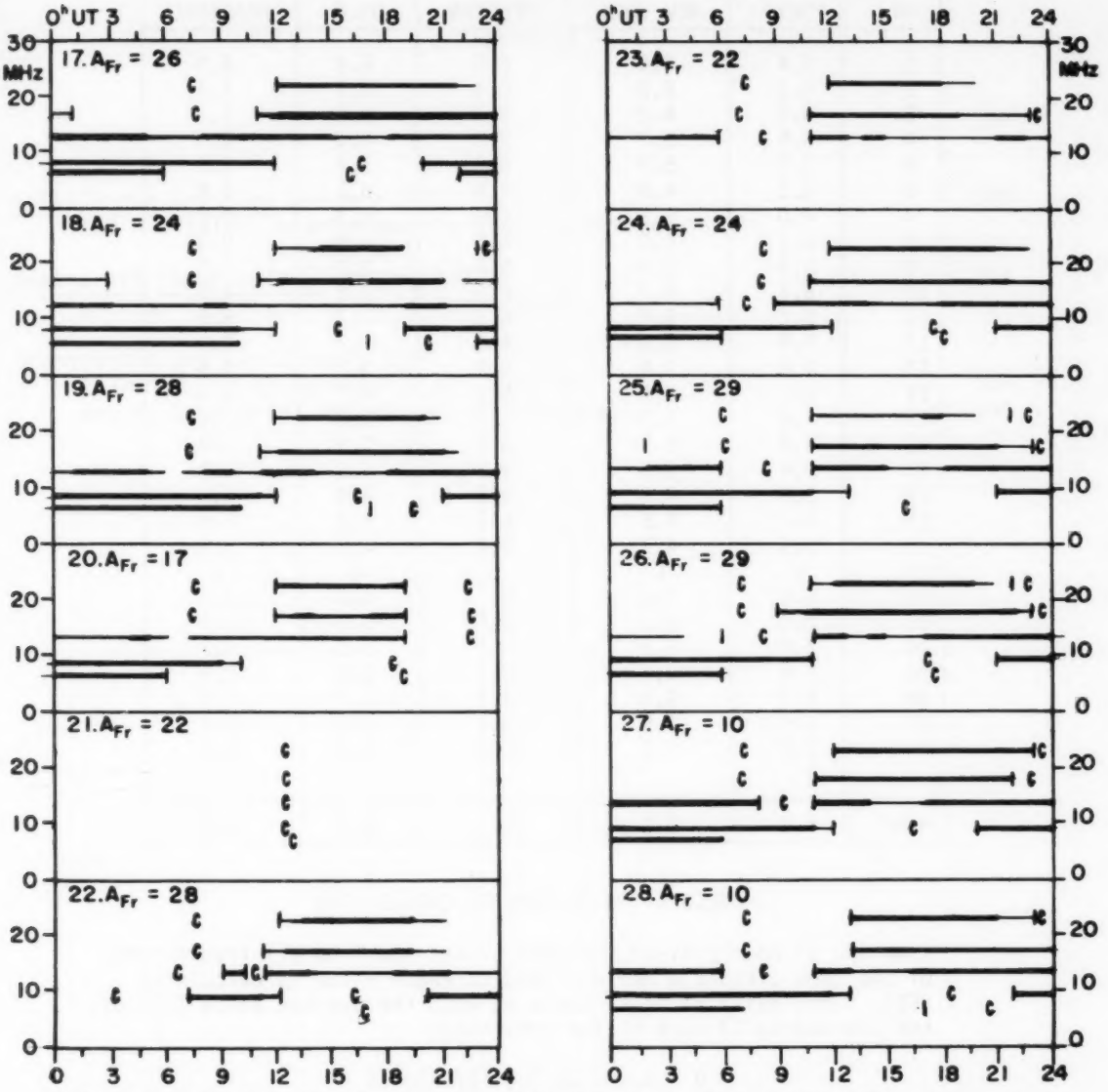
TRANSMISSION FREQUENCY RANGES -- NORTH ATLANTIC PATH

FEBRUARY 1982



TRANSMISSION FREQUENCY RANGES -- NORTH ATLANTIC PATH

FEBRUARY 1982



Field strengths from five frequencies, 6.4, 8.6, 13.0, 17.0 and 22.5 MHz, observed on a Norddeich-New York circuit are represented above. Heavy solid lines represent field strengths $\geq$ -12 dB above 1 μV/m (transmitter power reduced to 1 kW). Observed field strengths between -12 dB above 1 μV/m and -40 dB above 1 μV/m are represented by the fine line.

RADIO PROPAGATION QUALITY INDICES

FEBRUARY 1982

DAY	TOKYO	NEW YORK	TEHERAN	OSLO	BRACKNELL
1	6.4	3.8	6.0	6.4	6.9
2	4.3	4.3	5.4	6.7	4.1
3	5.5	4.2	3.7	8.0	7.7
4	5.5	3.7	2.8	6.5	6.6
5	5.8	5.4	4.1	7.6	5.0
6	6.1	4.8	3.8	8.1	6.8
7	6.0	5.5	4.2	8.7	6.7
8	6.3	5.2	5.6	7.6	8.3
9	5.5	5.6	5.9	8.0	5.7
10	6.7	4.7	6.2	7.8	7.9
11	6.2	5.7	6.3	5.7	6.6
12	5.5	5.0	4.6	4.7	3.0
13	4.8	2.4	5.9	3.7	2.5
14	5.1	3.6	5.9	4.7	4.0
15	4.4	5.3	6.7	7.0	6.9
16	5.8	5.9	6.5	7.0	7.8
17	6.4	6.1	9.8	5.9	9.6
18	5.3	4.8	9.0	4.9	4.9
19	4.8	5.5	8.2	5.2	5.4
20	5.3	4.7	5.4	4.2	5.2
21	C	C	C	C	C
22	5.0	4.6	8.7	5.3	5.2
23	6.0	4.5	8.4	3.6	3.2
24	6.0	6.2	8.1	3.3	3.7
25	6.6	4.7	8.3	2.3	0.9
26	6.3	6.8	7.9	6.5	5.1
27	6.9	7.9	5.1	8.1	7.1
28	8.4	7.4	7.8	8.2	8.6
MEAN	5.8	5.1	6.3	6.2	5.8

CALCULATION OF QUALITY INDICES (Q)

From all 24 hourly field strength values and from all frequencies of the same circuit a median field strength value is calculated (FD). This daily value is compared with the average value (FA) of the preceeding 27 days (1 sun rotation).

$$Q = 6.0 + 20 \log(FD/FA)/3.0$$

The quality indices vary from 0.0 to 9.9 where 6.0 is normal. Conditions are "normal" (index = 6.0), if they correspond to the average of the preceeding 27 days.

Scale for Quality Indices

0.0 - 1.0 = very poor
1.1 - 3.0 = poor
3.1 - 5.0 = fair
5.1 - 7.0 - normal
7.1 - 9.0 = good
9.1 - 9.9 = very good

LATE DATA

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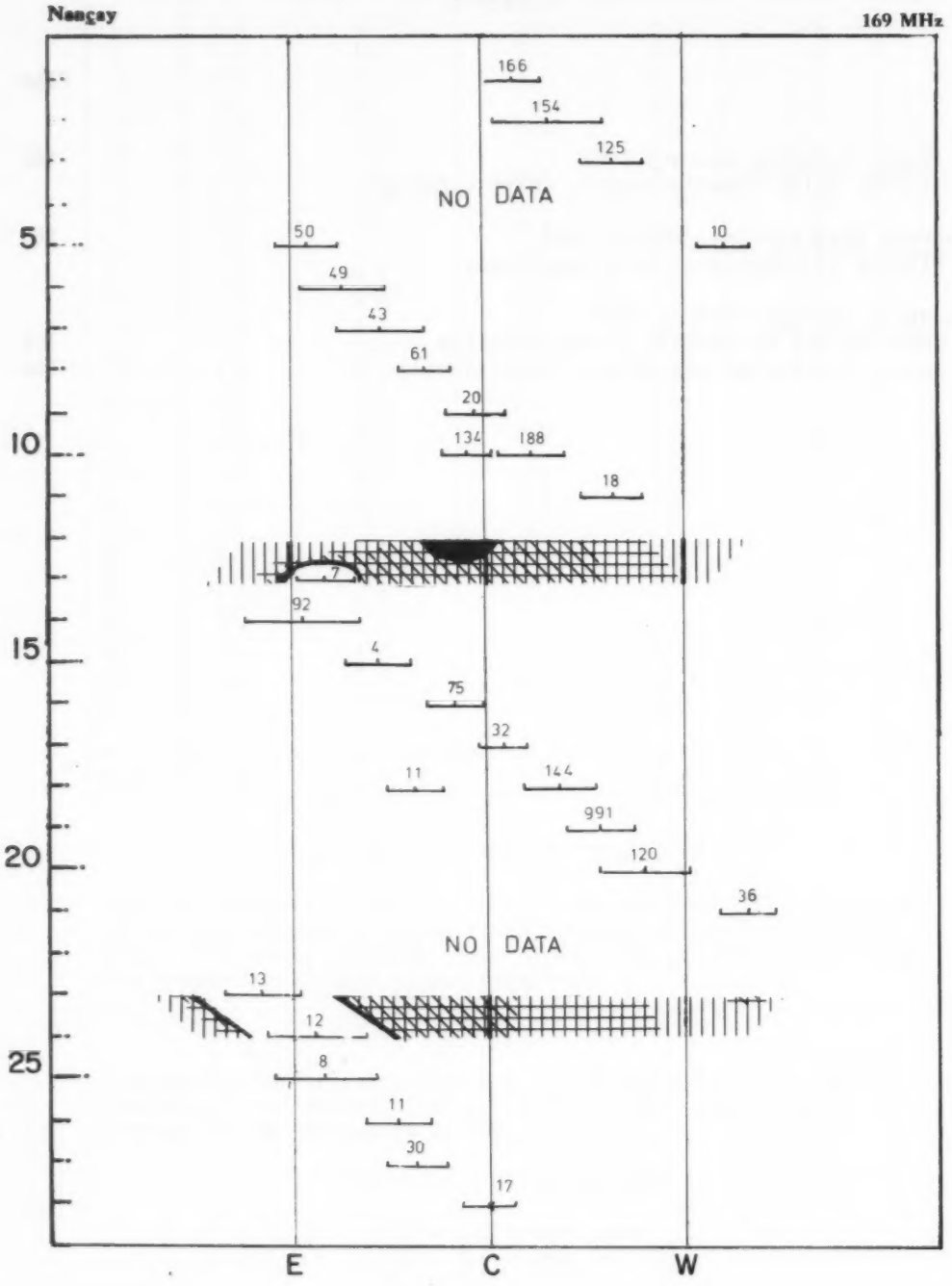
SOLAR RADIO EMISSION
INTERFEROMETRIC OBSERVATION

FEBRUARY 1982



PIONEER XII (VENUS ORBITER)

Interplanetary Magnetic Field Magnitudes

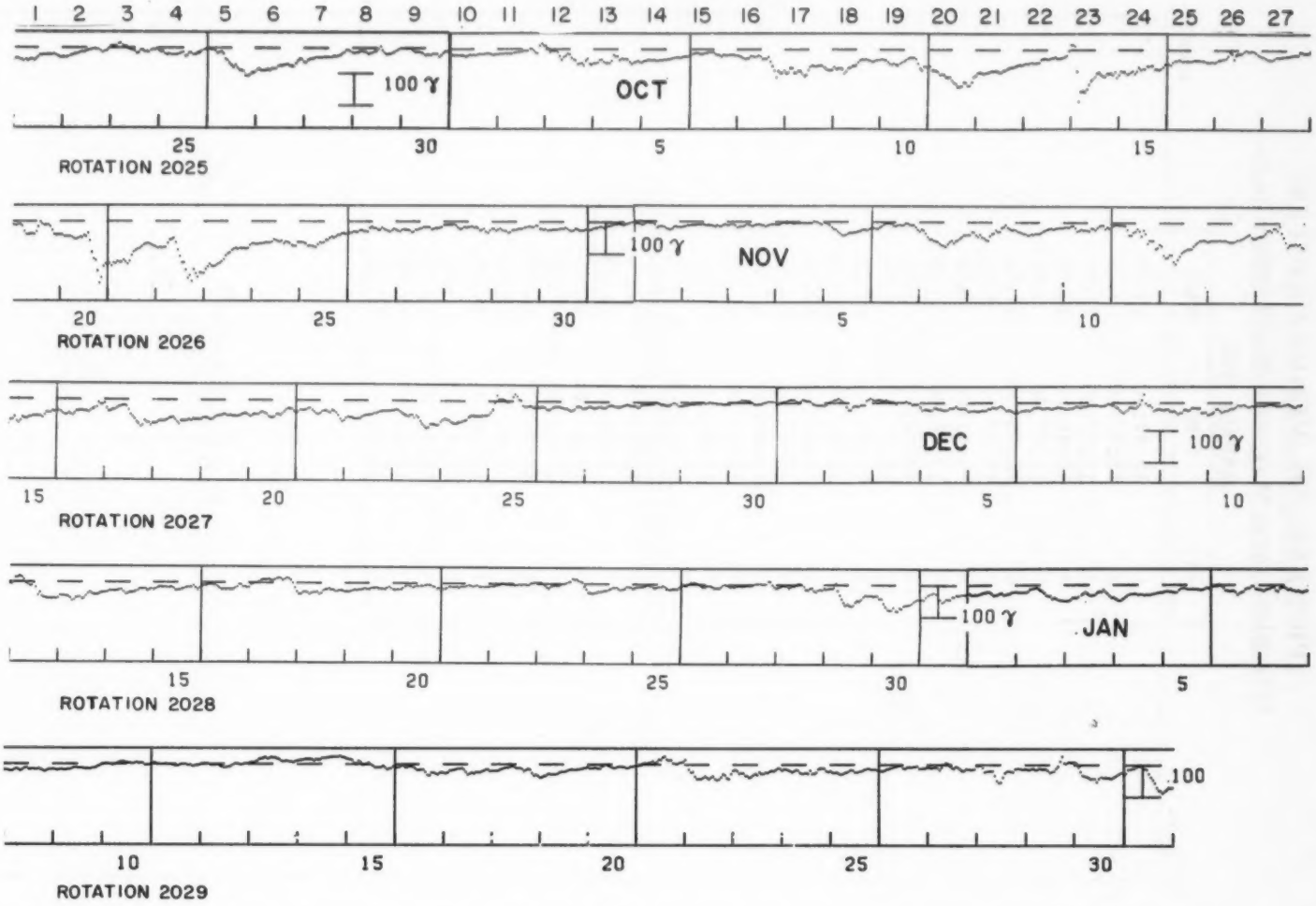
JANUARY 1982

DAY	TIME	BMAG
1	13:47:40	10.89
2	13:47:50	9.21
3	13:47:50	11.06
4	13:48:20	10.91
5	13:47:40	9.05
6	13:48:00	11.82
7	13:48:10	5.40
8	13:47:50	7.91
9	13:46:50	11.20
10	13:46:40	8.91
11	13:46:10	6.79
12	13:45:50	10.00
13	13:46:10	12.25
14	13:46:00	13.11
15	13:45:10	10.46
16	13:44:50	12.51
17	13:44:40	11.39
18	13:45:10	5.30
19	13:45:50	7.91
20		---
21	13:44:50	9.79
22	13:44:40	14.83
23	13:44:30	11.15
24	13:44:30	7.89
25	13:45:10	11.63
26	13:44:40	12.10
27	13:45:00	16.05
28	13:44:30	7.76
29	13:44:30	13.98
30	13:44:10	16.54
31	13:44:50	17.33

GEOMAGNETIC ACTIVITY INDICES

Hourly Equatorial Dst

by Bartels Rotation



Note: Both the sensitivity indicator placed on the last day of the month and the zero reference level change from month to month.

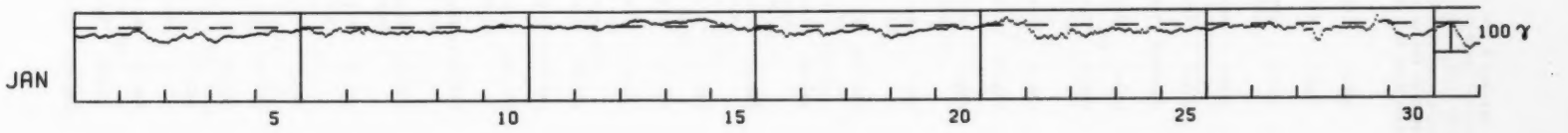
HOURLY EQUATORIAL Dst VALUES (PROVISIONAL)

NASA/GODDARD SPACE FLIGHT CENTER

JANUARY 1982

(Time-UT) (Units-Gammas)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	-27	-31	-32	-31	-32	-29	-27	-25	-24	-22	-23	-28	-33	-32	-31	-27	-26	-32	-30	-28	-28	-23	-22	-22
2	-23	-24	-23	-24	-24	-20	-13	-12	-10	-9	-12	-17	-20	-26	-33	-35	-36	-44	-40	-44	-48	-49	-49	-50
3	-50	-51	-46	-40	-40	-41	-36	-32	-28	-23	-27	-32	-34	-33	-30	-24	-22	-23	-16	-23	-29	-35	-41	-39
4	-44	-48	-50	-47	-42	-37	-32	-29	-29	-28	-29	-32	-30	-31	-33	-30	-32	-31	-29	-28	-26	-25	-24	-24
5	-21	-20	-21	-22	-23	-25	-23	-16	-11	-9	-10	-13	-13	-14	-13	-13	-13	-15	-16	-14	-11	-8	-11	-10
6	-3	-3	-4	2	-3	-9	-17	-19	-20	-19	-18	-23	-31	-26	-23	-21	-13	-9	-9	-3	-3	-12	-13	-14
7	-16	-19	-14	-12	-11	-7	-7	-17	-21	-10	-5	-7	-10	-15	-12	-17	-17	-20	-18	-21	-23	-20	-18	-18
8	-19	-20	-22	-22	-18	-15	-18	-22	-19	-13	-11	-17	-17	-16	-17	-17	-15	-18	-21	-24	-20	-17	-18	-16
9	-18	-20	-18	-16	-19	-19	-17	-17	-15	-12	-10	-13	-13	-13	-14	-15	-15	-16	-13	-13	-11	-7	-4	-1
10	1	2	1	-1	-3	-1	1	4	7	8	5	4	3	2	1	3	5	2	4	2	-3	-3	-2	0
11	4	3	-1	0	-2	-1	0	-2	-1	-2	-4	-6	-5	-2	0	0	-1	-4	-2	-6	-6	-4	-4	-1
12	1	2	1	0	-2	-4	-4	-2	-2	-7	-10	-11	-10	-9	-7	-2	1	1	0	-2	-1	2	1	2
13	5	5	6	9	15	16	17	21	16	17	20	19	19	16	14	9	7	9	9	7	7	5	8	10
14	12	12	13	15	15	15	13	11	14	13	13	19	18	19	20	22	22	24	22	23	25	21	20	17
15	15	14	11	3	1	9	6	-3	-1	1	4	-1	-5	-10	-11	-10	-10	-6	-11	-17	-14	-13	-7	-5
16	-10	-9	-5	-3	-9	-10	-6	-8	-8	-14	-19	-18	-17	-17	-25	-34	-35	-26	-26	-29	-32	-27	-25	-27
17	-29	-26	-20	-19	-18	-16	-14	-13	-12	-17	-25	-33	-29	-26	-30	-25	-25	-26	-23	-20	-16	-17	-22	-20
18	-21	-21	-20	-17	-14	-12	-10	-11	-8	-6	-8	-12	-12	-12	-15	-22	-18	-14	-17	-28	-35	-32	-36	-41
19	-40	-36	-35	-30	-30	-32	-31	-31	-29	-25	-23	-24	-22	-19	-17	-16	-17	-17	-16	-15	-14	-12	-11	-7
20	-13	-12	-12	-10	-13	-13	-6	-3	0	-4	-6	-10	-12	-10	-7	-7	-7	-8	-12	-11	-7	-7	-5	-2
21	-3	-2	3	5	2	5	6	10	3	8	15	14	22	25	15	12	13	4	2	1	5	6	6	14
22	-1	-16	-25	-23	-37	-45	-44	-45	-41	-36	-41	-45	-39	-36	-45	-48	-46	-39	-30	-33	-42	-45	-29	-19
23	-16	-20	-28	-26	-27	-34	-35	-41	-37	-32	-28	-32	-23	-29	-29	-25	-26	-21	-19	-21	-16	-11	-12	-18
24	-14	-14	-17	-20	-24	-20	-16	-19	-26	-29	-27	-26	-29	-19	-29	-29	-25	-15	-11	-12	-12	-21	-23	-20
25	-25	-26	-24	-28	-31	-30	-26	-24	-21	-17	-18	-24	-25	-22	-21	-19	-15	-13	-12	-15	-16	-15	-17	-18
26	-20	-21	-18	-14	-13	-10	-9	-7	-5	-2	-2	-11	-13	-8	-7	-8	-7	-6	-5	-13	-12	-11	-11	-8
27	-9	-11	-9	-8	-11	-17	-8	0	5	3	-4	-10	-13	-6	-9	-14	-20	-20	-14	-15	-16	-16	-14	-3
28	-2	-1	-9	-24	-21	-21	-20	-20	-34	-50	-57	-55	-39	-26	-21	-21	-21	-23	-14	-12	-12	-14	-15	-14
29	-15	-16	-13	-12	-17	-15	-11	-14	-14	-14	-18	-25	-22	-20	-12	-5	11	26	5	4	8	8	7	8
30	5	-7	-22	-33	-35	-37	-40	-44	-44	-44	-54	-43	-38	-40	-40	-40	-41	-43	-39	-35	-31	-27	-24	-27
31	-27	-15	-14	-12	-11	-7	-2	-4	-9	-11	-15	-28	-38	-47	-57	-71	-79	-81	-88	-82	-77	-70	-72	-71



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